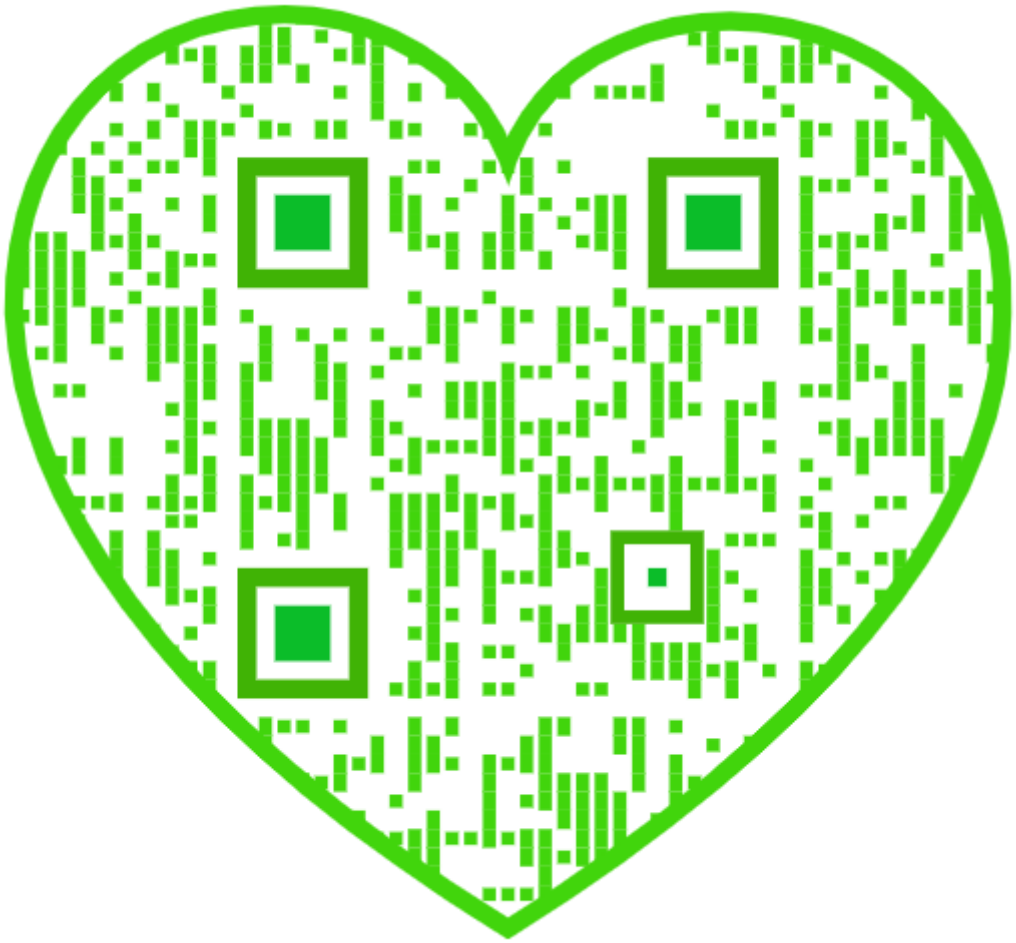

Modern Business

A SERIES OF TEXTS PREPARED AS PART OF THE MODERN BUSINESS COURSE AND SERVICE OF THE ALEXANDER HAMILTON INSTITUTE

ALEXANDER HAMILTON INSTITUTE
NEW YORK

Modern Business

Editor-in-Chief

JOSEPH FRENCH JOHNSON

Dean, New York University School of Commerce, Accounts and Finance

Associate Editors:

LEE GALLOWAY, PETER P. WAHLSTAD
ROLAND P. FALKNER

Titles	*Authors*
Business and the Man	Joseph French Johnson
Economics of Business	Frank L. McVey
Organization and Control	Charles W. Gerstenberg
Factory and Office Administration	Lee Galloway
Marketing Methods	Ralph Starr Butler
Advertising Principles	Herbert F. De Bower
Salesmanship and Sales Management	John G. Jones
Credit and the Credit Man	Peter P. Wahlstad
Accounting Principles	Thomas W. Mitchell
Cost Finding	Dexter S. Kimball
Corporation Finance	William H. Walker
Business Correspondence	Harrison McJohnston
Advertising Campaigns	Mac Martin
Railway Traffic	Edwin J. Clapp
Foreign Trade and Shipping	Erich W. Zimmermann
Banking	Major B. Foster
Domestic and Foreign Exchange	E. L. Stewart Patterson
Insurance and Real Estate	Edward R. Hardy Walter Lindner
Merchandising	John B. Swinney
The Exchanges and Speculation	Albert W. Atwood
Accounting Practice and Auditing	John T. Madden
Financial and Business Statements	Leo Greendlinger
Investment	Edward D. Jones
Business and the Government	Jeremiah W. Jenks

ACCOUNTING PRINCIPLES

BY

THOMAS W. MITCHELL, PH.D., C.P.A.

Assistant Professor of Business Administration,
University of Minnesota

MODERN BUSINESS

VOLUME 9

ALEXANDER HAMILTON INSTITUTE
NEW YORK

COPYRIGHT, 1917, BY
ALEXANDER HAMILTON INSTITUTE

COPYRIGHT IN GREAT BRITAIN, 1917, BY
ALEXANDER HAMILTON INSTITUTE

657.7
D17p

PREFACE

This book is the result of fourteen years experience as a teacher and student of accounting principles. In this study the author has accepted no accounting practice as correct merely because it was the practice and no statement of principle as true merely because it was the printed word, but has insisted on minutely and critically examining these practices and doctrines in the light of fundamental economic facts. That which was arbitrary he sought to put upon either a rational or a historical foundation. That which was plausible but which would not stand detailed critical analysis he has sought to correct in the light of economic fundamentals. For accounting principles and economic principles are not inconsistent when both are understood and correctly formulated.

In Chapter II, on business profits and business capital, attempt has been made, in a brief and inadequate way—for volumes might be, indeed have been, written on these subjects without doing them justice —to summarize those parts of economic thought on wages, rent, interest, profits and capitalization which bear directly upon accounting principles and to lay the foundation for the discussions of valuation, cash discounts, discounts on notes, depreciation and other

315779

subjects that follow. The author believes that his introduction of the concept of "turned and unturned capital" as a basis of accounting, of "allocated cost" as the fundamental idea in depreciation, and his treatment of cash discounts are new in accounting literature.

The author takes this opportunity of acknowledging his debt to Mr. Fred C. Russell for the chapter on Labor Saving Devices and to the Editors for valuable criticism and assistance in rearranging some of the material.

THOMAS WARNER MITCHELL.

Minneapolis,
November, 1916.

TABLE OF CONTENTS

CHAPTER I

EVOLUTION OF ACCOUNTING

SECTION		PAGE
1.	Why Accounting Is Necessary	1
2.	Customs of Ancient Nations	2
3.	Features of These Ancient Systems	3
4.	Development of More Modern Methods	4
5.	As an Expression of Financial Condition	4
6.	Ascertaining the Profitableness of an Enterprise	5
7.	Basis for Judging the Economies and Efficiencies of Operation	5
8.	To Establish Personal Responsibility and to Promote Honesty Among Officials and Employes	6
9.	To Establish Financial and Budgetary Control	7
10.	Bookkeeping and Accounting	8
11.	Constructive Accounting	9
12.	Inspective Accounting	10
13.	Interpretive Accounting	10
14.	Public Accounting	11
15.	Discussion of Interests Involved	12
16.	Summary	13

CHAPTER II

BUSINESS PROFITS AND BUSINESS CAPITAL

1.	Reasons for Engaging in Industry	14
2.	Example of Capital Used for Profit	15
3.	Distribution of Costs	19
4.	Business Profit	22
5.	Economist's Distribution of Productive Forces	22

SECTION PAGE
6. Interest 26
7. How Interest Contributes to Profit 29
8. Elements of Business Profit 31
9. Methods of Measuring Profits 32

CHAPTER III

FUNDAMENTALS OF BOOKKEEPING—SINGLE ENTRY

1. Importance of Bookkeeping 37
2. Development of the Form of Record 37
3. Ledger Accounts 38
4. Forms of Accounts 39
5. Classifying Information in the Account . . . 41
6. Recording Purchases on Account 42
7. Position of Debits and Credits 42
8. Change in the Account Idea 44
9. Analysis of the Account 45
10. Application of the Personal Account to Other Items 47
11. The Rules of Debiting and Crediting 48
12. Passing of the Personalistic Theory 50
13. Operating the Single-Entry Book 51
14. Purpose and Limitations of Single-Entry Bookkeeping 52
15. Method of Converting Books from the Single to the Double Entry Basis 52
16. Reconstructing Double Entry Records from Books Kept by Single Entry 54
17. Reconstructing Individual Accounts 57

CHAPTER IV

FUNDAMENTALS OF BOOKKEEPING—DOUBLE ENTRY

1. Peculiarity of the Merchandise Account . . . 60
2. Nominal Accounts 61

SECTION		PAGE
3.	Double-Entry Bookkeeping	62
4.	Fundamental Principle of Double-Entry Bookkeeping	63
5.	Recording the Exchanges	64
6.	Assets and Liabilities	65
7.	Income and Expenses	66
8.	Universal Rules of Debiting and Crediting	67
9.	Application of the General Rule	69
10.	Examples	69
11.	Sub-Divisions of Merchandise Account	72
12.	Advantages of the Double-Entry System	73

CHAPTER V

BOOKS OF ACCOUNT

1.	Why Entries Cannot Be Made Directly in Ledger Accounts	75
2.	Necessity for Detailed Records	76
3.	Books of Preparatory Entry	77
4.	Form of Journal	77
5.	Posting	78
6.	Routine of Recording	81
7.	Books of Subsequent Entry	81
8.	Memo Books	82
9.	Subsidiary Journals; General Characteristics	84
10.	The Cash Book	85
11.	Cash Debits	85
12.	Cash Credits	88
13.	Cash Credits Further Illustrated	89
14.	Sales Book	90
15.	Cash Sales	92
16.	Returns of Merchandise Sales	93
17.	Purchase Book	93
18.	Method of Operation	94

CHAPTER VI

CLASSIFICATION OF ACCOUNTS

SECTION		PAGE
1.	Importance of Correct Account Classification	96
2.	How to Build a System of Income and Expense Accounts	97
3.	The Value of Detailed Classification in Accounts—an Illustration	98
4.	Classifications of Assets and Liabilities	99
5.	Facts to Be Considered	100
6.	Reducing Transactions to Accounts	101
7.	Kinds of Accounts	102
8.	Profit-and-Loss Accounts	103
9.	Proprietorship Accounts	104
10.	Accounts Peculiar to a Corporation	105
11.	Controlling Accounts	106
12.	Operation of a Controlling Account	107
13.	Subsidiary Ledgers and Their Control	108
14.	Applications of Controlling Accounts	109
15.	Private Ledger	110
16.	Control of Private Ledger	111
17.	Installation of Controlling Accounts	112
18.	Advantages of Controlling Accounts	113

CHAPTER VII

POSTING MEDIA

1.	Definition of Posting Media	115
2.	Columnar Posting Media	116
3.	Specialized Purchase Book	116
4.	Posting	118
5.	Columnar Sales Book	119
6.	Prepaid Freight	119
7.	Posting from the Sales Book	121
8.	Cash Sales	121
9.	Specialized Cash Book	122

SECTION PAGE
10. Posting the Debit Page 124
11. Cash-Credit Page 125
12. Posting the Credit Page 127
13. Variety of Forms Possible 127
14. Method of Recording Notes and Drafts . . . 128
15. Notebooks 129
16. Notebooks as Books of Preparatory Entry . . 130
17. Payroll Book 131
18. Petty Cash Book 132
19. Ledger Systems 132

CHAPTER VIII

VALUATIONS FOR RECORDING PURPOSES

1. Fundamental Principle Involved 135
2. Some Questions in Valuation 136
3. Sources of Future Income 137
4. Sales Values 138
5. Valuation of Sources of Future Income . . . 139
6. Discount on Purchases 140
7. A Practical Illustration 141
8. Valuing the Risk Element 143
9. Summary of Discussion of Discount 144
10. Records of These Transactions 145
11. The Common Method 147
12. Trade Discounts 148
13. Advantages of Discount Quotations 149
14. Valuation of Equipment 149
15. Valuation of Liabilities 150

CHAPTER IX

TRIAL BALANCE

1. A Proof of Accuracy Becomes Necessary . . . 151
2. Former Method of Testing Ledger Postings . . 152
3. Modern Method—the Trial Balance 152

SECTION PAGE
4. Use of the Trial Balance 154
5. Forms of Trial Balance 155
6. Trial Balance an Aid to the Preparation of Financial Statements 157
7. Trial-Balance Book 158
8. Order of the Accounts 158
9. Incompleteness of the Trial Balance 159
10. Two Bases for Operation 159
11. Special Features of the Accrual System . . . 161
12. An Entry Required for Every Sale 162
13. Closing Out the Books 163
14. Routine of Preparing a Trial Balance . . . 164
15. Proving the Subsidiary Books 165
16. Other Uses of a Trial Balance 165

CHAPTER X

RELATION OF THE ECONOMIC ACCOUNTS TO THE FINANCIAL STATEMENTS

1. Financial Statement 167
2. Monthly and Yearly Statement 168
3. Working Sheet 169
4. Adjustments 171
5. Raw Material 172
6. Other Inventories 172
7. Freight Inward 174
8. Manufacturing Expenses 175
9. Interest on Mortgage 176
10. Taxes 176
11. Argument for Accruing Taxes 177
12. Prepaid Expenses 178
13. Other Prepaid Items 179
14. Advertising 180
15. True Prepaid Advertising 180
16. Merchandise Sales 181

SECTION PAGE
17. Selling Expenses 182
18. Outward Freight 182
19. Commissions 183
20. Office Salaries 183
21. Office Light and Heat 183
22. Stationery 184
23. General Expense 184
24. Cash Discounts 184

CHAPTER XI

RELATION OF THE PERSONAL AND PROPERTY ACCOUNTS TO THE FINANCIAL STATEMENTS

1. Assets 186
2. Notes Receivable 186
3. Notes of Officers, Employes and Stockholders . . 187
4. Notes Receivable Discounted 188
5. Accommodation Instruments 189
6. Accounts Receivable 190
7. Uncollectable Accounts 190
8. Expected Discounts on Uncollected Income . . 191
9. Instalment Accounts 191
10. Sources of Future Income 192
11. Trading or Working Assets 192
12. Prepaid Expenses 194
13. Durable Assets 194
14. Depreciation 194
15. Land 195
16. Accounts Payable 196
17. Notes Payable 197
18. Real Estate Mortgage Bond Payable 197
19. Reserves 197
20. Accruals 198
21. Proprietor's Account 199
22. Proof 199

CHAPTER XII

THE INCOME STATEMENT OR ECONOMIC SUMMARY

SECTION		PAGE
1.	Purpose of Financial Statements	202
2.	Evolution of Form	203
3.	Early Methods	204
4.	Nature of an Income Statement or Economic Summary	205
5.	Illustrations of Forms	207
6.	Manufacturing, Trading and Profit-and-Loss	209
7.	Other Forms	210
8.	Arrangement of Accounts	211
9.	Divisible Costs	213
10.	Departmental Statement	214
11.	Illustration of Departmental Statement	214
12.	Substatements	216
13.	Preparation of Economic Summary	217
14.	Proprietor's Account	220

CHAPTER XIII

BALANCE SHEET

1.	Definition and Origin of a Balance Sheet	222
2.	Use of a Balance Sheet	223
3.	Classification of Assets	224
4.	Classification of Liabilities	225
5.	Forms as Governed by Purpose	225
6.	A Form of Balance Sheet	226
7.	Theory of Balance Sheet Preparation	228
8.	Limitations upon the Balance Sheet	230
9.	Supplementing the Balance Sheet	231
10.	Balance Sheet Preparation	231
11.	Supplementary Entries	234
12.	Proving Up	234

CHAPTER XIV

OPENING AND CLOSING ENTRIES

SECTION		PAGE
1.	Kinds of Entries	235
2.	Opening Entries	235
3.	Illustration of an Opening Entry	236
4.	Opening Entries for a Corporation	237
5.	Necessity for Accurate and Complete Records	238
6.	The Accounting Period	239
7.	Monthly and Yearly Closings	240
8.	Methods of Closing	241
9.	Working Sheet	241
10.	Prepaid Items	242
11.	Closing Out the Economic Accounts	242
12.	Discussion of These Entries	244

CHAPTER XV

LABOR SAVING DEVICES

1.	Guides in Developing Labor Saving Devices	246
2.	Satisfactory Records	247
3.	What Is Meant by a Labor Saving Device	247
4.	Forms of Books	248
5.	Indexing Loose-Leaf Books	249
6.	Card Records	250
7.	Advantages and Disadvantages of These Records	251
8.	Original Records	252
9.	Posting from Tickets	252
10.	Advantages of This System	253
11.	Carbon Records	254
12.	A Combination Sales and Billing Book	254
13.	Voucher Register System	255
14.	Memorandum Books as Posting Media	258
15.	Special Features of Loose-Leaf Journals	258
16.	Side Posting	259

SECTION PAGE
17. Ledger Systems 259
18. Boston Ledger 260
19. Mechanical Aids 260
20. The Automatic Features of a Good Accounting System 262
21. Standard Methods of Proving Accuracy . . . 263
22. How to Check 263
23. Reconstructions of Posting Media 264
24. Routine; Reverse-Posting Methods 266
25. Variation of These Methods 268
26. Current Check 268
27. Locating an Error 271
28. Tabulation of Ledger 271

CHAPTER XVI

INTERNAL CHECK

1. Internal Check 274
2. Accounting Control: Check on Stationery . . 274
3. Accounting Control: Joint Responsibility . . 275
4. Example of a Check That Did Not Check . . . 276
5. Accounting for Stock 277
6. Imprest Cash Fund 277

CHAPTER XVII

COMPOUND INTEREST PROCESSES AND THEIR USE IN BUSINESS

1. Definition of Terms 280
2. Simple and Compound Interest Defined . . . 281
3. Rate of Increase 281
4. Rule for Finding the Amount of Any Principal . 282
5. Present Worth 283
6. Rule and Formula for Finding the Present Worth 284
7. Annuities Defined and Differentiated 285

SECTION PAGE
8. The Amount of an Annuity 285
9. The Rest of an Annuity 287
10. Formula for Finding the Amount of an Annuity . 288
11. Present Worth of an Annuity 288
12. Rule and Formula for Finding the Present Worth of an Annuity 288
13. Valuation of Annuities Certain 290
14. Result of This Method of Accounting 291
15. Basis of Accounting for Profits 292
16. The Basis of Distribution 293
17. Illustration of Distribution of Interest . . . 294
18. Illustration of the Valuation of the Various Instalments on Successive Instalment Dates . . 295

CHAPTER XVIII

DEPRECIATION

1. The Depreciation Problem Analyzed 297
2. Some Popular Misconceptions of Depreciation . 298
3. Principle of Allocated Cost 298
4. Depreciation Confused with Value Shrinkage . . 301
5. Illustration of Value Shrinkage Thru Decrease in Selling Value 301
6. Value Shrinkage thru Decrease in Present Worth . 302
7. Fallacy of the Interest Theory 304
8. Depreciation of Intangible Assets 305
9. Causes of Depreciation 305
10. Methods of Treating Depreciation in the Accounts 306
11. Advantage of Class Depreciation Reserve Accounts 307
12. Treatment in the Accounts at the Time of Scrapping an Asset 307
13. Relation of Repairs to Depreciation 308
14. Another View of Replacements 308
15. Handling Repair Costs in the Accounts . . . 309

SECTION PAGE
16. Substituting a Repairs-Reserve Account for the Depreciation Reserve 309
17. Treatment of Obsolescence in the Accounts . . 310

CHAPTER XIX

METHODS OF DETERMINING THE AMOUNT OF DEPRECIATION

1. Sinking-Fund Method 312
2. Significance of the Sinking-Fund Method . . . 313
3. Significance of Value-Shrinkage Principle . . . 314
4. Annuity Method Further Considered 315
5. Results Obtained by Annuity Method 315
6. Level or Constant Depreciation Method . . . 318
7. Significance of the Level-Depreciation Method . 319
8. Value-Shrinkage Principle and the Level-Depreciation Method 319
9. Proportional-Depreciation Method 319
10. Significance of the Proportional-Depreciation Method; Allocated-Cost Principle 320
11. Significance as Related to Value-Shrinkage Principle 321
12. Method of "Diminishing Arithmetic Progression" . 322
13. Significance of "Arithmetic Progression" Method; Allocated-Cost Principle 322
14. "Arithmetic Progression" Method and Value-Shrinkage Principle 323
15. Best Depreciation Method for Practical Purposes 323
16. Appraisal Method 325

CHAPTER XX

ILLUSTRATION OF THE APPLICATION OF ACCOUNTING PRINCIPLES

1. Organization of the Parker, Webb, Anderson Company 326

SECTION		PAGE
2.	The Sales Agreement	330
3.	The Opening Entries	331
4.	The Purchase Register	333
5.	Analysis of Sales	336
6.	Analysis of Payroll	339
7.	Petty Cash	339
8.	The Main Cash Book	341
9.	Cash Transactions	344
10.	Journal	347
11.	Posting	348
12.	Posting to the General Ledger	349
13.	Trial Balance Before Adjusting and Closing	350
14.	Adjustments Preparatory to Closing	350
15.	Store Records	352
16.	Distribution of Expenses	354
17.	Summary of Cost and Income	356
18.	Closing Entries	356

ACCOUNTING PRINCIPLES

CHAPTER I

EVOLUTION OF ACCOUNTING

1. *Why accounting is necessary.*—The exchange of something in the possession of one individual for something belonging to another which made its appearance early in the life of the race was responsible, in all probability, for the invention of some method of keeping a record of these exchanges. Frequently such exchanges or barters, as they were called, required more than the mere handing over of one article in exchange for another. When an adjustment was required, because of differences in valuations, a calculation became necessary to complete the exchange to the satisfaction of both parties. This was especially true when the entire exchange was not consummated at one time. If, for example, one person promised to give up something a month hence in exchange for something else to be received at once, a record of his promise was necessary.

In its etymological sense accounting means "counting too" and this was the sense in which it was first used. The term as it is now understood is difficult to

define because it includes within its meaning the results of a long process of growth.

2. *Customs of ancient nations.*—Altho history is silent regarding the origin of accounting, we are safe in assuming that it had its inception at a very early period, and this is evident in the relics of the earliest civilizations. Among the ruins of ancient Babylon there have been found a large number of tablets, many of them as old as 2500 B. C. in which complete records of various commercial transactions of those times are recorded.

It is supposed that the Phœnicians evolved the alphabet to aid them in expressing the results of their business transactions and thus were able to avoid being cheated. The Romans and Athenians, had also highly developed systems of record keeping. Among these people both private and public enterprises made use of accounting or recording as a means of keeping track of their affairs.

In medieval times we find traces of an accounting system in England as early as the twelfth century. There the public officers collected feudal dues and paid the expenses of government. Twice a year each public official who was responsible for monetary transactions met a board to whom he reported the amount of funds which he had collected and accounted for their disposition, the difference between his receipts and disbursements being checked by the funds still in hand. In so reporting and showing supporting evidence the public officer was said to "account" for his

stewardship, and the board who received and criticised his report was called a "board of auditors" or hearers.

Thus "accounting" consisted in reporting on the conduct of one's trust or stewardship, and "auditing" in listening to and approving or disapproving the report. We shall see later that auditing today, is founded on the same principle as it was in medieval times.

3. *Features of these ancient systems.*—The main idea behind all these ancient systems was that of keeping a record of what had transpired. Disagreements were bound to arise when memory only was relied upon for subsequent reference. Thus, in England, the chancellor of the exchequer kept the accounts for the crown; each sheriff was required to appear twice a year, before him, render a report, and pay all revenues collected. In receipt, the sheriff received a "tally" consisting of a piece of wood on which notches were cut to represent the amount of pounds, shillings and pence that he had paid into the treasury. The tally was then split lengthwise into two parts, each part similarly notched, one half remaining with the chancellor of the exchequer and the other being given to the sheriff. The presentation by the sheriff of the half "tally" which matched that in the possession of the chancellor of the exchequer was evidence of what had already been paid, and the payment by the sheriff of the balance on hand indicated the end of the transaction, that is, the closing of the account.

In all these primitive methods there was no thought

of making records permanent. At that time all records were of a temporary nature to be thrown away after the transaction was completed. Yet these crude records, or "tallies" formed the basis of an accounting system and were the first evidence of any precautionary measures in record keeping.

4. *Development of more modern methods.*—During the latter part of the fifteenth century the Venetian traders gave to the business world the forerunner of our present bookkeeping systems. In the next century, accounting, so far as it related to the keeping of permanent records of monetary transactions, was established as indispensable to the conduct of business and the adjustment of business relations.

Both accounting and auditing, however, have developed far beyond the concepts of former times. Perhaps an idea of what accounting is now may best be conveyed by a description of the purposes to be served by a modern accounting system and the chief divisions of the accounting field. While there are many specific purposes to be served by accounting most, if not all, of them are included in the following classes.

5. *As an expression of financial condition.*—From the standpoint of expressing the financial condition of a business an accounting system presents the following facts: (1) it affords a convenient record from which to set forth the financial condition of an enterprise at a given time; (2) it shows the distribution of ownership or interest in this wealth among the various

classes of creditors and its legal proprietors; (3) it indicates the relationship between the claims upon the enterprise for the payment of funds in the near future, and the available funds in hand or in sight with which to meet these claims; (4) it discloses all other factors relating to the stability of the enterprise and its financial soundness or unsoundness.

6. *Ascertaining the profitableness of an enterprise.* —Altho the fundamental motives of industrial activity are found in the production and distribution of goods or services with which to satisfy wants, our modern industrial organization transacts a large part of its business for immediate profit or gain. A detailed discussion of profits and their nature is given in Chapter II. For the present we need only remember that profits constitute the reward for which business is carried on. The business man wishes to know whether he has been making or losing money during any period of time—a month or a year—and the amount thereof, but he wants to know more than this. If he is furnishing more than one kind of article or service he is interested in finding out whether each branch of his business is profitable and the degree of profit which it shows.

7. *Basis for judging the economies and efficiencies of operation.*—Any factor of operation may be effectively or ineffectively utilized. The working time of laborers may be used to advantage or wasted. The same is true of materials and supplies. It follows that the more efficiently all these and other op-

erating factors are utilized the greater will be the rate of output or product or service, the less the cost per unit of product or service, and therefore the greater the opportunity for profit.

By devising service units, compiling operating costs accordingly and comparing unit costs in one period with unit costs in another, the managers can ascertain the trend of operating efficiency in each part of the business. By scientific investigation and the establishment of ideal efficiency standards and the detailed comparison of actual with standard unit costs, it is practicable to ascertain the exact location of operating inefficiencies and to measure them. Then the causes of such inefficiencies can be investigated and eliminated.

8. *To establish personal responsibility and to promote honesty among officials and employes.*—The proprietor himself cannot care for all the funds, materials and other possessions of his business but must put them in the care of officers and employes. If opportunities offer, some of these trusted persons may yield to temptation and convert a part of the funds or the goods to their own use. The responsibility of each trusted employe must be fixed, and it must be made difficult for him to be dishonest without immediate discovery, not merely for the protection of the proprietor, but equally for the protection of the employe.

In the public mind this purpose of protection has been considered the chief purpose of bookkeeping. It

is without doubt an important function, frequently made use of, and has given rise to the modern systems in which the idea of an "internal check" occupies an important position. While important in itself, this service constitutes but one of many rendered by an adequate accounting system.

9. *To establish financial and budgetary control.*— In a private business operated for profit, expenditures of money are made with the view of obtaining a larger amount in return. They are an investment from which a profit is expected.

In governmental operations the relationship is reversed—money is obtained to enable the government to meet expenditures which will be necessitated in performing its functions. In all governmental bodies the authorizations to spend money for various necessary purposes are given by legislative appropriations. The government officials have no legal right to make expenditures or to incur obligations in excess of these appropriations. Hence there arises the need of keeping records of these expenditures, contracts and orders so as to avoid over-spending, and to insure that the limited appropriation will be applied to indispensable purposes first.

In private enterprises, also, it is necessary to have a plan on which future efforts will be based. This working plan must be founded upon financial possibilities, expenditures must not be planned which will exceed resources. If plans are to be successfully carried out they must be based upon the records of the

past. In order that the management may keep within the limits of their planned appropriation they must have records of their progress. The accounting system may be so devised as to furnish this data.

10. *Bookkeeping and accounting.*—Before discussing how accounting may be made to serve these various purposes it will be well to fix in our minds the relation which exists between accounting and bookkeeping. The art of using an accounting system to record the operations of an enterprise as they occur and to compile their effects in intelligible form is called bookkeeping. The subject has been defined as "the art of recording pecuniary transactions in a regular and systematic manner."

Bookkeeping is not considered "accounting" by those who style themselves public accountants, tho as a matter of fact, it is really a division of the accounting field. It is true that bookkeeping does not require so extensive a professional training as is necessary in constructive and inspective or interpretive accounting. The bookkeeper uses a system which has already been defined for him. The methods of using the various books and report forms, have also been prescribed for him more or less carefully, and in his work the bookkeeper simply applies these methods to the individual operations and transactions of the enterprise.

Yet he must carefully analyze each transaction or operation, determine its effects, and then decide into

which of his prescribed classes of accounts each of these particular effects falls. This is often no slight problem, and its difficulty is not appreciated by the public accountant. Without doubt the bookkeeper's task is worthy of higher esteem than it usually receives.

To revert now to the subject of accounting it will be found that as the term is now used the field is divided into four parts—constructive accounting, bookkeeping, inspective accounting and interpretive accounting—which must be discussed.

11. *Constructive accounting.*—Constructive accounting comprises the construction of new accounting systems for enterprises and the improvement of existing systems. An accounting system consists of three parts; viz.: (1) a system of accounts, with their definitions, in which to classify and record the effects of business operations; (2) a system of books in which to compile these accounts, and to determine and record these effects preparatory to their compilation; (3) a system of forms to be used to record business operations at the time of their occurrence and bring this data to the books for compilation, together with the prescribed routine in using them.

The making of a system of accounts is a difficult work of scientific classification which cannot be accomplished successfully without a thoro understanding of the purposes aimed at. The kinds of books and report forms may or may not lend themselves to efficient, accurate and economical use. Constructive

accounting therefore requires a thoro professional training and a high order of intelligence.

12. *Inspective accounting.*—A review of the work done by the bookkeeper for the purpose of detecting errors of principle, mechanical errors and fraud is inspective accounting. It is an extension of the idea of auditing discussed in a previous section.

Bookkeepers, at times, commit errors. Moreover, some weak ones who also handle funds or other convertible wealth are guilty of frauds which they try to conceal. Frauds, too, sometimes take the form of misrepresentations perpetrated by the proprietors. The purpose of inspective accounting is to detect and correct these errors.

13. *Interpretive accounting.*—The extraction of the meaning from data which has already been compiled by the bookkeeper, and which has been verified by the inspective accountant is termed interpretive accounting. The interpretive accountant obtains from this data: information concerning the financial condition of the enterprise; information concerning its profitableness; information concerning the economy and efficiency with which its operations have been transacted. From this data, also, he gathers hints concerning the degree of fidelity and honesty which has been exercised by the employes.

The other three divisions of the subject exist for the sake of interpretive accounting. Accounting systems are not devised for their own sake. Bookkeeping and inspective accounting are designed to

furnish properly classified and verified data. From a proper interpretation of this data, information necessary for the guidance of managers and proprietors is obtained.

Interpretive accounting is performed for the most part by business managers who consult the accounts daily for information to guide them in their work. Interpretation of accounts, however, also constitutes a part of the work of public auditors.

14. *Public accounting.*—Constructive, inspective and interpretive accounting all enter into the work of the public accountant. Public accounting is distinguished as a separate branch of accounting by reason of the persons who pursue it rather than the nature of their work. When they engage in constructive accounting their work is often termed "systematizing." Work designated as public accounting is performed by public accountants who offer their services to the general public for hire in a manner similar to men in other professions. The term accountancy has been defined as "a profession, the members of which, by virtue of their general education and professional training, offer to the community their services in all matters having to do with the recording, verification and presentation of facts involving the acquisition, production, conservation and transfer of values."

In the United States the emphasis in the work of the public accountant is placed upon the interpretive rather than on the inspective side of the subject.

The reverse is true in England. There, public accounting consists mainly of inspective accounting—a detailed verification of the bookkeeper's work—while interpretive accounting is represented by a certified statement of financial condition (a balance sheet), accompanied by a summary of the sources of income and expense.

15. *Discussion of interests involved.*—Inasmuch as their chief concern is with the construction of a system and its operation, public accountants and bookkeepers look first at the mechanical side of accounting; accuracy and clearness of information become their watchwords. They will consider the other viewpoints only in a general way. The public accountant, of course, is frequently called upon to interpret as well as to construct or check.

All accountants or bookkeepers, however, should possess the interpretive ability. They can not measure the success of their work until they know it is furnishing the kind of information that is needed. Also, tho such a statement may appear academic, the bookkeeper must remember that his chances for advancement depend upon his preparedness. Acquired practice in interpreting accounting data will be an asset to him in this regard.

The manager or owner, having another point of view, looks at the interpretive side of his accounting system. He reads and measures the progress of his enterprise thru the information furnished him by his accounting records. In addition, he must understand

constructive accounting as a possible means of obtaining more information. Furthermore, he must understand the mechanical aspects of the records in order to be certain that the information he receives is not misleading. And lastly, he can measure the efficiency and economy of operation of his own accounting department if he has a thoro knowledge of accounting construction and bookkeeping.

16. *Summary.*—In conclusion we may define accounting as the science and the art: (1) of classifying and tabulating the effects of business operation and of verifying the accuracy of these tabulations; (2) of interpreting these effects so as to show the financial condition of the business, the profitableness of its operations, the efficiency and economy with which these operations have been carried on, and the fidelity of employes, and to establish budgetary and financial control; (3) of devising and installing mechanism and routine necessary for accomplishing these purposes.

It is seen, therefore, that accounting is a broad and comprehensive subject which falls into three separate divisions dealing with: (1) the mechanical operations of keeping books; (2) the provision of rules for these operations or the checking of them; and (3) the interpretation of the results shown by the records.

REVIEW

What was the original meaning of "accounting" and "auditing"? State the chief objects pursued by accounting systems.

How is bookkeeping distinguished from accounting?

Describe the chief branches of modern accounting.

CHAPTER II

BUSINESS PROFITS AND BUSINESS CAPITAL

1. *Reasons for engaging in industry.*—The ultimate purpose of nearly every person who participates in industry is to obtain goods and services with which to satisfy the wants of himself and dependents. In modern society all of these goods and services are to be had directly in exchange for money—using the term "money" to include *all* media of exchange, including bank notes and bank deposits, or using "money" in the sense in which the term "cash" is customarily used. Hence each industrial participant's immediate purpose is to get as much "cash" as possible. The industrial employe sells his services for money. The investor buys stocks and bonds in order that he may have more money in the future than he would have if he hoarded his present stock of money.

The business man strives by buying cheap and selling dear, to increase his stock of money. His ultimate purpose, like that of the employe and the investor, is to increase his command of goods and services with which to satisfy his wants; but the means to that end is an increased stock (or flow) of money. He starts with an initial capital, usually consisting of "cash," expends this in the purchase of goods, equip-

ment, and personal services and aims to resell these, disguised as a product or service, for a greater amount of cash. This increase in his stock of cash he usually designates as "profit."

2. *Example of capital used for profit.*—Suppose that I have a cash fund of $100,000. I may speak of this as an "initial capital" of that amount. If I expend this and get back $150,000 in cash, I am said to have "gained" or "made a profit of" $50,000. What I really have done is to incur a money outgo of $100,000 as the purchase price of a prospective money income of $150,000. This is true whatever be the *immediate* objects upon which I expend my cash, and whatever the length of time elapsing between its expenditure and the receipt of the income. It matters not whether I expend the $100,000 directly in the purchase of the contractual right to receive $150,000 (as in the case of bonds of $100,000 value, interest at the rate of 5 per cent which run ten years); or in the immediate purchase of goods which I later resell for $150,000; or expend $75,000 in the immediate purchase of goods and $25,000 in the purchase of personal services in handling and selling these goods for $150,000; or expend $25,000 in the purchase of raw materials, and $10,000 for water and fuel and $40,000 for machinery, all of which are used up in converting the raw materials into "finished" articles, and $25,000 for personal services in converting the materials into finished articles and selling them for $150,000. In all of these cases the real purpose of the

cash outlay is to obtain the cash income and the cash outlay is properly to be regarded as the purchase price of the cash income which results (whether this is more or less than was anticipated). In each case, there is a "profit" of $50,000, which consists of an increase or "gain" in my capital.

The $150,000 of cash income may not all be received at one time, however, but may be spread over many months or years. There can be no definite ascertainment of the amount of profit until the venture is completed and the $150,000 collected. Yet I may wish to form a judgment as to the profitableness of my venture up to any point of time between its commencement and its completion, and of its profitableness during any given month or year. This I can do with satisfaction to myself by identifying the unsold goods and unused equipment at any point of time with cash outlay which was their purchase price.

A. Thus assume that on January 1st, 1916, I expend $100,000 in the purchase of 100,000 units of certain goods which I resell for $150,000, $60,000 of which is received for 40,000 units during January, 1916, and $90,000 for 60,000 units during February, 1916. Altogether I have made a profit of $50,000 on the venture in the two months. Identifying $40,000 of the initial outlay with the 40,000 units sold during January and $60,000 of it with the goods sold during February but still in my possession January 31st, I am able to say that the $60,000 of money income received during February cost me $40,000 and

represented a profit of $20,000 and that the $90,000 of money income received during March cost me $60,000 and represented a profit of $30,000.

B. Again, starting with a cash capital of $90,000 I expend $75,000 for 75,000 units of goods on January 1st, and expend $12,000 for personal services during January and $13,000 during February, obtaining $60,000 of cash income for 30,000 units during January and $90,000 for 45,000 units during February, once more I have made a profit of $50,000 on the entire venture. Again, by identifying $30,000 of the initial outlay with the 30,000 units sold during January and $45,000 with the 45,000 units sold during February, I am able to say that the $60,000 of cash income received during January cost me $42,000 and represented a profit of $18,000, while the $90,000 of cash income received during February cost me $58,000 and represented a profit of $32,000.

Thus by identifying the cash outlays by means of the objects upon which they were expended, and then observing which of these objects were the means of obtaining the income obtained during any given period, I am able to trace to this income the initial cash capital that was expended in its acquisition and measure the profit that it contains. The chief logical difficulty in the second case is in counting all of the $12,000 outlay for personal services during January as cost of the $60,000 of cash income received during that month; no doubt some of these services contributed to effecting the sales made during Febru-

ary. To associate them exclusively with the income received during January is an illustration of "business conservatism"—a conservatism that is usually, though not always, justified.

C. Once more, assume that on January 1st, 1915, I expend $25,000 for raw materials, $30,000 for machinery, which during the first part of 1915 I use up entirely in converting the materials into "finished goods," laying out $8,000 for water and fuel and $12,000 for personal services in effecting the transformation. I then have salable finished goods which have cost me an aggregate outlay of $75,000, an average of, say, $1 per unit for 75,000 units. If I sell 30,000 units during the remainder of 1915 for $60,000 cash, laying out $12,000 for personal services in effecting the sales, and sell the remaining 45,000 units for $90,000 during 1916, personal services in effecting these sales costing $13,000, I have practically the same case as the preceding. Again, by identifying the initial cash capital with the raw materials, machinery, water, fuel and transforming services upon which it was immediately expended, with the finished goods which resulted from their combination, I am able to trace to each bit of cash income the initial cash outlay which was its cost and then measure the profit which it contains.

D. Finally assume that starting with a cash capital of $60,000 on January 1, 1915, I expend $30,000 for machinery which I set up into a plant and that during the remainder of that year I expend $12,000

for 36,000 units of raw materials, 30,000 of which I convert into 30,000 units of "finished goods," spending $2,000 for fuel and water, and $6,000 for personal services in the transforming processes; that during 1916, I expend $13,000 for 39,000 units of materials, that I convert these and the 6,000 units left over from 1915 into 45,000 units of finished goods, spending $3,000 for fuel and water and $9,000 for transforming services; and finally that my machinery is all used up by this time. Suppose further that during 1915 I sold 27,500 units of finished goods for $55,000 cash, spending $10,000 cash for personal services and so forth in making the sales and deliveries, and that during 1916 I sell the remaining 2,500 units made during 1915 and the 45,000 units made during 1916 for $95,000 cash, spending $15,000 for personal services and the like, in effecting sales, making deliveries and so forth. Then since I started with $60,000 cash and emerged with $110,000 cash and nothing else (there being no fresh investments in the meantime and no withdrawals of cash or goods for my personal use) I made a profit, during the two-year period, of $50,000.

3. *Distribution of costs.*—Coming to the individual years, by identifying the initial cash outlays with the immediate objects of expenditure and tracing thru these to the finished goods, I may say that the 30,000 units of finished goods made during 1915 represented initial capital amounting to $30,000, or that they "cost" $30,000 or an *average* of $1 per unit, that the 2,500 units on hand December 31, 1915, "cost," or rep-

resented initial cash capital of $2,500, that the 27,500 units sold "cost," or represented an initial cash-capital of $27,500 and that the 6,000 unused units of materials "cost" or represented an initial cash capital of $2,000. Similarly I can say that the 45,000 units of unfinished goods made during 1916 identified $45,000 of "initial" capital or an average cost of $1 per unit and that the 47,500 units sold cost or identified an "initial" capital of $47,500. "Initial" as here used does not mean "original" but simply that it was once in the form of cash; obviously $40,000 of the cash spent during 1916 was not on hand at the start but was received from the sale of unfinished product during 1915.

The initial capital identified by means of the finished product made during each year may be traced as follows:

Initial Capital Traced Through	1916		1917
Materials 30,000 units @ 33⅓¢	$10,000	45,000 units	$15,000
Personal services	6,000	" "	9,000
Fuel and water	2,000	" "	3,000
Machinery	12,000	" "	18,000
Total, 30,000 units	$30,000	45,000 units	$45,000

The apportionment of the outlay of $30,000 for machinery presents the greatest difficulty. Clearly this is part of the total cost of the entire income of $150,000 obtained during the two years. But how much to assign to the $55,000 obtained during 1915 and how much to the $95,000 obtained during 1916 is the problem. This problem of the apportionment of the cost of machinery (the initial cash capital identified

by it), or any other article of equipment to the different parts of the whole income of which it is the cost or to the different parts of the whole service which it renders is the problem of "depreciation." Many methods of making this apportionment are in use and will be discussed in a later chapter. Here let us use the plausible one of apportionment according to the number of units of service rendered. This assigns 30,000/75,000 of the 30,000-dollar initial outlay for machinery or $12,000 to the 30,000 units of finished goods made during 1915 and 45,000/75,000 of it or $15,000 to the 45,000 units made during 1916.

By thus identifying $30,000 of the initial cash capital with the 30,000 units of finished goods made during 1915, we are able to identify $27,500 of it with the 27,500 units sold during that year, and in turn to trace this $27,500, and the $10,000 paid for personal services in effecting the sales, to the $55,000 of cash-income obtained in the sale of these goods. By this means we can say that during 1915, $37,500 of initial capital *completed a turnover,* i.e., completed a cycle from cash to cash, and was turned into $55,000. The profit is $17,500. In like manner we can identify $47,500 of "initial" capital ($22,500 of the "original" and $25,000 of the $55,000 of cash obtained during 1915) with the 47,500 units of goods sold during 1916 and thus trace this and the $15,000 paid for personal services in effecting sales, making deliveries, etc., to the $95,000 of income obtained thru their sale. Thus we can say that this income cost $62,500 or that $62,-

500 of initial capital was turned into $95,000, a fact which represents a profit of $32,500.

In all the above illustrations while cash is paid out immediately for salable goods, or for machinery, materials, fuel, water, personal services, and the like, that are wanted not for their own sake but for the cash income which, directly or indirectly, they are the means of obtaining. Their cost is the cost of this income. Business is carried on in terms of the medium of exchange—cash. Typically it starts with cash, which is paid to create a situation from which cash is abstracted. This completed cycle may be termed a "turn-over" of the initial capital involved. If more cash results eventually than was paid out, there is a profit. If less cash results eventually, there is a loss. Continuous business consists of continuous recurrences of these operating cycles each starting and ending with cash.

4. *Business profit.*—A "business profit" may be defined as that increase of cash which tends to occur by buying at one set of prices and selling at a higher.

The explanation of profit—the explanation of why the cash income normally is greater that the cash outgo necessary to obtain it—belongs to the economist. Yet a brief summary of economic theory on this point is not out of place here because of the bearing which this explanation has upon certain vexing accounting problems.

5. *Economist's distribution of productive forces.*—The economist thinks of human beings as cooperat-

ing with nature as represented in land and with natural laws by means of tools and equipment in the production of wealth and its distribution in space; the total product of their cooperative efforts being divided among these factors. He thinks of part of the product being ascribable to the labor of each human being who works, part of it as ascribable to each article of equipment, part of it as ascribable to the land, part of it as ascribable to those human beings who organize, plan and supervise the work. In an industrial society in which each human member is intelligent he argues that each person who cooperates in the work and the owner of each land and equipment factor tends to get as his share of the product of the joint effort that which he or his factor contributes to the whole product.

The economist's method of thinking what the economic contribution of any factor to the whole product is, is to think of the effect of withdrawing from the combination one unit of the factor in question,—one unit of labor, or one unit of land of a given grade, or one unit of equipment of a given description—keeping the quantities of all the other factors constant but rearranging all to the best advantage, then observe by how much the total product of the reduced combination falls short of that of the original. This part of the product which disappears when one unit of the factor in question is withdrawn and which reappears when that unit is restored to the combination is thought of as economically ascribable to that unit,

and if all the units of the factor are just alike, that quantity is ascribed to each unit. This quantity ascribed to one unit is termed "the marginal product" of the factor in question. Thus the economist conceives of a marginal product of labor of each grade, of land of each grade, of equipment for each purpose and of each variety.

There are perhaps some logical difficulties and certainly some tremendous practical difficulties connected with the above described concept. But assume its validity for the sake of a starting point. If industry were carried on as a purely cooperative enterprise—each workman contributing his labor, each equipment builder the service of his equipment, each land owner the service of his land, each manager his labor of organizing, planning and directing, and the product divided only after it appeared—if it were practicable to measure the economic contribution of each individual factor, if each human participant had complete knowledge of the situation and all were of equal degree of intelligence and were under the same degree of economic pressure, then perhaps each individual factor would tend to get his marginal product or the money value of it as his share. But industry is not carried on under this purely cooperative plan. On the contrary one class in industrial society—the business man, or "enterpriser," or "entrepreneur"—buys the shares of the other factors at prices fixed in advance by contract and in most cases pays for these shares in advance of their appearance and sale. He

buys the workman's share and the hired manager's share when he pays them money-wages or money-salaries; he fixes the prices of their shares when he fixes their wage or salary rates. If he leases the equipment, he fixes the prices of these shares in the lease when he fixes the rental or royalty to be paid for the use of the equipment; if he buys the equipment the purchase price thereof is the amount paid for the equipment builder's share. The contract rental fixed in the lease fixes the purchase price of the landowner's share.

At the time of making these contracts, these economic shares are not definitely determinable either as to quantity or as to money value. The value of a particular workman's share of a year's product might amount to (say) $1,500 or to only $900; say that the probable value is $1,200. Were the workman to wait until the product was sold to ascertain and take his share the amount of it would be uncertain and might be considerably below the probable value of $1,200. Workmen, even if able to wait, would probably take something less than the probable value of their economic contributions, something less than they could average in the long run, *in order to make the amount certain;* in the present instance the workman might be willing to forego the chance of getting $1,500 and with it the chance of getting only $900 for a guaranty of (say) $1,100, even tho he were to wait until the product was ready for the market, to receive this sum. In like manner the lessor of equipment and of land

is willing to take something less than the probable value of the product economically attributable to his equipment or his land in order to eliminate the element of uncertainty. And the business man's caution makes him unwilling to guarantee the values of these shares unless the guaranteed amount is less than their probable values. Therefore the business man is a risk taker and in the contract guaranties that relieve these other factors of their risks a margin of contract price under probable value is left that in the long run leaves him a profit.

Not only does the business man guarantee the values of the other factors' shares but in most cases pays for those shares in advance not only of their sale but of their appearance in a completed product. The workman receives his wages monthly and even weekly; his product is not finished until weeks, even months, later. The same is true of the rental paid for a leased machine; in the case of the purchased machine the equipment builder receives most of his pay years in advance of the appearance and sale of the product. Much of the money rental of leased land is also paid somewhat in advance of the appearance of the product and in the case of purchased land the economic product is paid for altogether in advance. This means that money wages are practically altogether advanced out of capital, and that a considerable part of the land rent and equipment rent is also so advanced.

6. *Interest.*—The fact of these advances brings an-

other force to depress contract wages, contract equipment rent, contract land rent, or the contract prices of equipment and land below the probable values of their economic contributions to the total product—and this force is *interest* or *the discounting of future values.*

Interest is due to two sets of facts; viz.: (1) because of a lack of imagination most people cannot appreciate their future wants as greatly as like wants of the present moment; (2) unless altered by borrowing or saving, most people's present and prospective income is not uniform but variable in flow so that present wants and wants of various degrees of futurity are not equally provided for.

The second is probably the more important group of fact. Many persons, in their prime, have comparatively large present incomes and, due to probable failure of earning power as they grow old, much smaller incomes in prospect. Some have fairly uniform incomes in prospect. Many, perhaps, just beginning business life, have comparatively small incomes at present with much larger incomes in prospect. The first class contributes most of the savers; these subtract from present enjoyable income to supplement the future. The last class furnishes most of the borrowers for consumption purposes and for self-improvement and probably a goodly share of the borrowers for business purposes; they subtract from prospective future enjoyable incomes in order to add to the income of the present.

Now it is a fact of human experience that the larger one's income is during a given period the less important is a unit of it, and the smaller one's income the greater is the importance of a unit of it. This is because of the variation in the intensity and importance of the various wants. At any given rate of exchange of present dollars for future dollars of any given degree of futurity, as the saver subtracts dollar after dollar from his present means the utility of a unit of what remains rises, and the utility of the successive increments to his prospective future income falls. He will tend to save up to the point at which the utility of the last decrement from present income just equals the utility of the corresponding increment to the future income. And in the case of the borrower, as he adds dollar after dollar to present enjoyable income the utility of the successive increments falls while the utility of a unit of the remaining future income rises. He will tend to borrow up to that point at which the utility of the last increment to present enjoyable income just equals the utility of the last decrement from the future enjoyable income.

At any given rate of exchange between present income and future enjoyable income of a given degree of futurity—a year hence, five years hence—therefore, the savers will tend to save a certain amount, the borrowers will tend to borrow a certain amount; but at an arbitrarily chosen rate of exchange the two amounts will not be equal. If the borrowers want more than the savers are willing to save at that rate,

the former will bid up the rate and induce more saving. If the savers are willing to save more than the borrowers are willing to take at that rate, competition among the savers will bid down the rate. Competition among savers and lenders and bargaining tends to fix a rate of exchange at which the rate of saving just equals the rate of borrowing—"supply equals demand."

7. *How interest contributes to profit.*—In past experience this rate of exchange of present for future enjoyable income has been one in which the future income exceeded in amount the present income for which it was exchanged. This excess or premium is called interest. This excess, expressed as a percentage of the present income exchanged, is called the *rate of interest for the period of time involved.*

In the above, we have spoken of a rate of exchange and a rate of interest. There would be but *one* for a given period of time if there were no risk involved or if the degree of risk were uniform. As a matter of fact there are at any given time and place and for any given period, as many different rates of interest as there are different degrees of risk. Also, rates of interest, having been determined, do not stay determined, but the process of determination and re-determination is going on continuously.

Interest enters into all human valuations in which time is involved. It is one of the elements that connect the prices of land and equipment with their rental values. It connects the prices of all durable goods,

productive or consumptive, with the probable values of their services. And it connects but holds apart the values of the economic contributions of the production factors and the contract prices of their services—wages, land rent and equipment rent. Interest is another force therefore which contributes to the business man's profit.

If the business man contributes his own labor of organizing, planning and directing to the combination this labor will contribute to the total product and the value of this contribution also will be left in his possession and contribute to the excess of his income over his outgo. A large part of modern industry, however, is not directed by the enterprisers (the stockholders) but by hired managers.

While interest enters into all valuations involving time, owing to lack of uniformity in information and variations in the imagination's power to see the possibilities of a given situation, the valuation process works imperfectly and many anomalies appear that offer special profit opportunities to those who can recognize and seize them. The first to discover or recognize the merits of an improved process or invention, to foresee a calamity or a bumper wheat crop, those who can most clearly trace and foresee the effects of a war, are able to buy at one set of prices and sell at a higher, or sell at one set and buy back at a lower.

Monopoly is another force which widens the breach between the buying and the selling prices. Habits

formed among the purchasing public also often keep them buying a well known brand of an article at prices which have little reference to their cost, and build up a value for "trademarks" or "good-will."

8. *Elements of business profit.*—The chief elements of business profits therefore are compensation for risk assumed, interest on advances out of capital, mal-adjusted values, monopoly, consumers' habits (good-will) and the enterpriser's own contribution to the product in his capacity as a worker. Many will object to the last on the ground that the enterpriser who contributes his own labor should allow himself a salary and count it as one of his expenses, this because he could sell his services to someone else for a salary. It must be remembered, however, first, that should he follow this alternative his contract salary would be merely a guaranteed commutation of his economic share of the product of the other business organization; secondly, that he who undertakes the risks of industrial society can guarantee others' shares but cannot guarantee his own. If he employs his own capital and contributes his own labor he cannot assure himself of interest on his capital or a salary for his labor, because the risks of others which he assumes may go against him—indeed they often do.

He may, if it amuses him, resolve his "net income" into parts and say this part represents interest on invested capital, this part represents salary, that part represents compensation for risk, and so on. And this may be of some advantage in helping him to de-

termine whether it would not have been more advantageous to lend his capital to some one else at contract interest and sell his services to some one else for a contract salary. But which part of his net income is actually due to the one cause or the other is practically not determinable.

9. *Methods of measuring profits.*—There are two methods of measuring profits, the Income Sheet Method and the Balance Sheet Method.

The Income Sheet Method sets forth the business income during a given period and its costs, the excess of income over its cost being called "net income" or profit. Another way of expressing it is to say that it deals only with turned capital. The "cost of income" is the amount of initial capital that has completed a turn-over during the period (or so nearly completes it that for practical purposes it is considered as completed). The "income" is the cash that has been received (or nearly received as in case of accounts and notes receivable). The profit is thus the increase of the turned capital.

The Balance Sheet Method sets forth *all* the capital, turned and unturned, both at the beginning and the end of the period, and the profit is the increase, due regard being had for fresh capital investments and withdrawals made during the period, of the total capital during the period.

Thus in case B above I may compute my profits for each of the two months by the Income Sheet Method as follows:

		January		*February*
Income from sale of goods		$60,000		$90,000
Cost of this income:				
Cost of goods sold	$30,000		$45,000	
Cost of personal services	12,000		13,000	
Total cost—or initial capital turned		42,000		58,000
Profit—excess of income over its cost—or increase in turned capital—		$18,000		$32,000

By the Balance Sheet Method the profits are computed thus:

Capital	*January 31*		*February 2*
Assets: Cash	$63,000		$140,000
Goods (45,000 units at cost)	45,000		0
Total Capital Jan. 31	$108,000	Feb. 28	$140,000
Capital Jan. 1	90,000		108,000
Profit, or increase of total Capital	$18,000		$32,000

These two methods give the same result. On January 31st, the goods on hand are valued at cost, $45,000, to identify that amount of initial capital that has not completed a turn-over. Also $3,000 of the cash was on hand at the beginning. If we deduct this $3,000 and the $45,000 from the total of $108,000 we obtain $60,000, which was the income, and if

we deduct them from the $90,000 we obtain $42,000 which was the "cost of income" for January or the amount of initial capital that completed a turn during that month. Thus the inclusion at cost of items which identify unturned capital virtually rules such capital out of the profit computation. Hence the reason for identical results by the two methods.

Again in case D, I may compute any profit for 1915 by the Income Sheet Method as follows:

Income, from the sale of 27,500 units of goods		$55,000
Cost of this income (initial capital completing a turnover)		
Cost of Goods sold (initial capital identified by 27,500 units)	$27,500	
Cost of services (initial capital identified by them)	10,000	
Total cost—total initial capital turned		37,500
Profit, excess of income over its cost, or increase of capital in turnover		$17,500

By the Balance Sheet Method I proceed as follows:

Capital Dec. 31, 1915			*Capital Dec. 31, 1916*
Assets: Cash	$55,000		$108,000
Unsold goods	2,500		0
Materials	2,000		0
Machinery	18,000		0
Total Capital	$77,500		$108,000
Capital Jan. 1, 1915	60,000	Jan. 1, 1916	77,500
Profit increase in total Capital	$17,500		$ 30,500

The valuations put upon "unsold goods," "materials" and "machinery" on December 31, 1915, simply identifies those quantities of unturned capital. All of this completes the turnover during 1916 and gets into "cost of income" of that year.

In the above illustrations capital is always treated as identical with assets. This is partly because debts payable were omitted from the illustrations. The more complicated cases will be considered in a later chapter.

Now we have seen that—

A. A business profit is the excess of income over its cost, or is that increase in cash capital that occurs or tends to occur in the process of buying at one set of prices and selling at a higher.

B. The making of a profit involves at least two transactions, namely, a purchase and a sale—for otherwise there is no turnover.

C. Profits are made possible by human caution with respect to the assumption or the carrying of risks; by interest on advances made by the enterpriser out of his cash capital; by the enterpriser's own manual or mental labor; by monopoly, economic friction, chance, and other miscellaneous causes.

D. Profits may be computed either by concentrating attention on the capital that has completed a turn and observing its increase—which is the Income Sheet Method; or by observing the increase in the whole capital.

We have also touched on such subjects as assets,

valuation of assets, depreciation, the distinction between capital and income (capital and "cost of income" or unturned and turned capital). These and other subjects will be elaborated in later chapters.

REVIEW

What is the ultimate purpose of people who participate in industry? Their immediate purpose?

Define "business profit" and show that it is concerned primarily with money or cash.

What problems in the computation and valuation of business capital and business profits arise in a continuous business that do not arise in the completed venture?

Why are unused materials and unsold merchandise valued at cost in making up a balance sheet?

How does the problem of depreciation arise?

What two methods of computing business profits are there? In what respects do they differ concerning the capital with which they deal?

CHAPTER III

FUNDAMENTALS OF BOOKKEEPING—SINGLE ENTRY

1. *Importance of bookkeeping.*—Bookkeeping, altho it may be the least important of all the branches of accounting, is nevertheless a prerequisite to the work of inspective and interpretive accounting. Therefore, a knowledge of bookkeeping principles is essential to success in any field of accounting.

It is apparent that bookkeeping is the making of a record. This record should be so explicit and detailed, that at any time the nature and character of any transaction may be readily perceived. The main activity of bookkeeping is classification. By this we mean that, as the story of every transaction comes to the bookkeeper, he must analyze it, determine and classify its effects and express them in the terms of his accounting system.

2. *Development of the form of record.*—A record of business transactions became a necessity when merchants began selling on credit. The first bookkeeping methods were extremely crude. It has been noted in Chapter I that in medieval times the first records were made by cutting notches on a stick, which was then split into two parts. These parts, of which the merchant retained one and the customer the other,

showed the complete history of the transaction. Neither the merchant nor the customer could change the notches without such alteration being discovered when the accounting was done, i.e., when the sticks were put together again.

If the shopkeeper was able to write, he naturally made a written memorandum of the indebtedness or the credit of each customer. The book in which these memoranda were written was the shopkeeper's "diary,"—a record of daily events—or "journal" (daily). A book very similar in nature is in our modern accounting system. Some of the old journals that have been preserved contain a description of the various business transactions in a literary paragraph style; the quantities, prices and amounts are buried in the paragraph.

Later, probably as a result of the inconvenience experienced in hunting thru paragraphs for amounts of indebtedness, these amounts were set out in the margin of the page to the right of the paragraph, where they were more prominent. Later still, ruled money-columns came into use, so that the amounts followed one under the other in regular order and could be easily found.

3. *Ledger accounts.*—This diary or journal probably constituted the sole record of personal indebtedness at first, but further records were soon needed. Several customers, perhaps, made various purchases and payments before they had entirely paid up their previous indebtedness. The details of one customer's

purchases were scattered thru the whole record, so that when A, for example, came in to settle, it was necessary for the merchant to search thru his diary and make up a list of all of A's purchases and of his previous payments—in other words, to make out A's "account." While this was being done, A had to wait. In consequence often the shopkeeper, in his hurry, would overlook some items, with the result that he himself would suffer loss, or A would be dissatisfied.

The next step, then, was to prepare these separate statements of sales and payments beforehand, perhaps day by day, and to have them ready when required. This method not only saved the customer's time but made it possible for some one to make the compilation when he was not needed for other purposes. At the same time the work could be done more carefully, and thus loss and dissatisfaction could be avoided. Such a compilation of a customer's indebtedness became his "account stated," "account" or "statement." If the customer agreed that the account was correct, but did not pay at the time it became his "account settled" (upon). Eventually, in order that these accounts might be in a form convenient for reference, they were combined in a bound book, which was the origin of our modern "ledger."

4. *Forms of accounts.*—Thus, an account became a record of the indebtedness of a person to the business, or of the business to the person. Some of these accounts involved a series both of credit purchases

and of payments. At first the accounts were probably drawn up in many different forms. But it finally became customary to use a sheet divided into a left-hand and a right-hand half, each with a separate column for the amount, the dates, the explanation and the checking. Thus, this account form is still com-

JOHN JONES

He owes						He had paid					
DATE		EXPLANATION	CHECK	AMOUNT		DATE		EXPLANATION	CHECK	AMOUNT	
March	1	Bo't Mdse.		$25.00		March	5	Paid cash		$10.00	
"	10	" "		10.00		"	15	" "		20.00	
"	25	" "		6.00							

monly used by many firms. It should be noted that when the merchant wishes to know how much John Jones owes he must add up the two "amount" columns and subtract the payments from the purchases. If frequent reference is made to the accounts this is an annoying proceeding, especially if it must be repeated several times before the account is fully paid up.

In recent years, many business houses have come to use the "three-column balance" account form that

JOHN JONES

DATE		EXPLANATION	CHECK	OWES	PAYS	BALANCE
March	1	Bo't Mdse.		$25.00		$25.00
"	5	Paid cash			$10.00	15.00
"	10	Bo't Mdse.		10.00		25.00
"	15	Paid cash			20.00	5.00
"	25	Bo't Mdse.		6.00		11.00

is here given. When this is used the balance of the account is a continuous record carried in the extreme right-hand column. Whenever a record of a

customer's purchase is made in the account, it is added to the previous balance against that customer. Whenever he makes a payment, that payment is deducted from the balance at the time it is entered in the payment column. Thus no time is lost in computing the balance when reference is made to the account and, what is equally important, the computation is more likely to be correct since it is not hurriedly made.

5. *Classifying information in the account.*—In order that all the information regarding each transaction might be included in these accounts, the date, a brief description of the transaction, and the amount were entered, each in a separate column. The checking column was used to prove the accuracy of the transfers from the shopkeeper's diary to the account itself. By numbering the pages of his diary and his ledger the shopkeeper could cross-reference each transaction. He would enter beside the record of the transaction in his diary the page number of the account in the ledger. He would also enter in the ledger account the page number of the diary from which the transfer was made.

If a dispute arose in regard to an account, he could trace each entry back to the original record in his diary where full details could be obtained. At the same time, this check in his diary showed him what transactions had been transferred. Therefore, when, in spare moments, he transferred more transactions he was in no danger of omitting any, or recording some

twice, in his ledger. He need only begin with the first unchecked item.

6. *Recording purchases on account.*—When the merchant began selling on credit to his customers, he soon found it necessary, because he often lacked ready cash, to make his own purchases on credit. A record of such purchases and of payments to his creditors (people to whom he owed money, or the people whose customer he was) naturally became necessary. These records were first entered monthly, in the diary or journal with the record of the merchant's sales. But the confusion that resulted soon made it necessary for him to keep separate records of his purchases and his sales.

Since the indebtedness of the customer to the business was recorded on the left-hand side of the account, it became natural, for the sake of contra-distinction, to indicate a debt payable by entering it on the right-hand side of the creditor's account. For the same reason, since the customer's payment was written on the right-hand side of his account—i.e., set against the record of sales charged against him—so a payment to a creditor was recorded on the left-hand side of his account, in order that it might be distinguished from the purchases made from him and previously recorded on the right-hand side of the account.

7. *Position of debits and credits.*—As a result of arbitrary practice the left-hand side of the customer's account is known as the "debit" side, from the Latin

"debit," meaning "he owes." The right-hand side of the creditor's account is called the "credit" side, from the Latin "credit," meaning "he trusts," or "he has faith." When a customer pays $10 of his debt, for example, he may in a certain sense be said to trust the business. A payment on his debt affects their relations the same as if the vendor had purchased something from his customer with the understanding that this purchase should constitute a reduction in the amount due him. On the books of the debtor the creditor records such payments as a reduction in the former's indebtedness; he records the payment on the left-hand side because he trusts the creditor with money to apply on his debt.

As soon as a credit system was instituted, it became necessary to make a record of every transaction which affected an account, or which either vendor or purchaser wished to have recorded. Each separate record of a transaction came to be known as an entry, and when the record was transferred to the ledger account the term entry was still applied.

Since the left-hand side of an account was known as the debit side, entries made on that side were called debits or charges. For a similar reason, entries on the right-hand side were called credits, since that was the credit side of the account. The course of a complete entry for a sale of goods, then, was (1) a record of the sale in the diary, (2) the transfer of this record to the purchaser's account, (3) the entry of date, explanation, number of the diary page, and amount in

the ledger account, and (4) a record opposite the memorandum in the diary, showing the ledger page to which the transaction was posted.

If, on the one hand, a person owed money to the business, this fact was evidenced by the excess of debits over credits in his account on the books of the business. On the other hand, if the business owed money to a customer, this was evidenced by the excess of credits in the account of the person to whom the money was owed. On the books of the customers and creditors the entries are reversed to express the reversed relationship.

8. *Change in the account idea.*—It is apparent that the accounts that have been described were kept only with individuals. An account was a record of the dealer's transactions with other persons. Soon, however, a new accounting need was felt. Whenever a shopkeeper wished to know how much money he had on hand, or how much of any other wealth he possessed, he was compelled to take an actual inventory, or count, of his possessions. Even then, he could tell only how much he *actually* had on hand, and not how much he *should have.*

Thefts and miscounts in making change, on the part of employes, and similar causes, operated to make the one different from the other. The proprietor naturally was interested not only in ascertaining the amount of money he possessed, but in detecting and stopping these leaks. Consequently he soon began keeping a record of the transaction that brought about

changes in his wealth. He probably recorded these transactions at first in memorandum form in his diary; but as the number increased, the details were difficult to pick out from the mass of other material there, so he soon opened an account in his ledger with these various classes of wealth. Since only accounts with persons were kept, it was at first necessary to make this a personal record. He therefore appointed one employe as custodian of all the money of the business, and opened an account with him.

This was not only good bookkeeping but good management as well. Since one person was the sole custodian of cash, he was responsible for all money received, and no money could be paid out without first being obtained from him. By means of this method it was possible to locate the causes of leaks. The following illustration shows the method of operating this personal account.

SAMUEL JOHNSON, CASHIER

Dr. (He receives)			Cr. (He pays out)		
Mar. 1	Balance	$2,000—	Mar. 2	By W.C. Robinson	$250—
" 2	To Jas. Brown	100—	" 3	" A.J. Reid	500—
" 3	" Wm. Smith	150—	" 4	Employes' wages	150—
" 4	" Chas. Greene	75—		*Balance, cash on*	
" 5	" Hiram White	50—		*hand*	1,475—
		$2,375—			$2,375—
Mar. 6	Balance	1,475—			

9. *Analysis of the account.*—Whenever any of the money of the business is placed in the custody of Samuel Johnson, cashier, he is regarded as owing the business the amount he received. Whenever a properly authorized person takes any of the money out of his

custody, or when he pays out money, upon proper authorization, for any of the purposes of the business, it is considered that he has reduced his debt by the amount so removed. This is a common-sense application of the rule for debits and credits already formulated for personal accounts.

In the illustration, Samuel Johnson, cashier, is first represented as owing the business $2,000, the amount of money in his custody on the morning of March 1st. During the week, $375 is collected from James Brown, William Smith, Charles Greene and Hiram White, and turned over to the cashier, for which additional sum also, he becomes indebted to the business. Hence, the four debits in his account. But during the same period he pays W. C. Robinson $250, A. J. Reid $500, and the employes $150, thereby reducing the debt to the business by the total of these sums. Therefore his account is credited with $900. At this time the records show that he has become indebted to the business to the extent of $2,375, but has discharged $900 of this indebtedness. His net indebtedness is therefore $1,475, which is the amount of the business' money that is supposed to be in his possession.

In this illustration, the account has been closed out at the end of the week and a new balance has been brought down. In order to close the account, it is necessary to enter the balance on the credit side and foot, or total, both sides. If these totals agree, the balance is correct and may be carried down on the morning of the next day. The ruling and method of

closing and opening an account, as given in this illustration, are consistent with the best bookkeeping practice. It should be observed, however, that today accounts are seldom, if ever, closed and reopened daily or weekly. The balances may be drawn off, but the accounts are usually closed out only at the end of fiscal or semi-fiscal, periods—month, half year or year.

At frequent intervals, in the case of the method that has been discussed, the proprietor or his representative will also compare the actual amount of cash with the balance of the cashier's account, and will have the entries in the account verified, in order to check the honesty of the cashier.

The title of this account "Samuel Johnson, cashier" was too long and was soon abbreviated to that of "Cashier," or "Cash." In the course of time, the bookkeeper and others who interpreted the account came to think of cash as the *money,* itself, rather than as the *custodian* of the money, but the account still serves the purpose of establishing the cashier's responsibility.

10. *Application of the personal account to other items.*—The idea soon developed that if an account with one class of property or money, was useful, an account with other classes of assets—such as merchandise, fixtures, land, buildings, horses, wagons and customer's notes—would also be useful. At first, undoubtedly, it was assumed that a custodian should be appointed for each class of property and that the ac-

count, in each case should be opened with this custodian. It is probable however, that such a custodian was never actually appointed. The plan just mentioned was in keeping with the so-called "Personalistic Theory," which held that accounts could be conducted with persons only. An account was considered the record of personal relations; a record of land, for example, could be had only if that land were placed in the control of an individual. The account with the custodian of land showed how much land was due to the business, or, in other words, how much it possessed. Later on, the account was known solely by the class of items which it represented, just as the cash account represented the amount of cash possessed by the business.

11. *The rules of debiting and crediting.*—According to the "Personalistic Theory" of accounts, the only rule for debiting or crediting was that which applied to persons; "debit" and "credit" still retained their original significance of "he owes" and "he trusts." This rule was as follows: (1) Debit a person's account when he gets into debt to the business or the business gets out of his debt; (2) Credit a person's account when the business gets into his debt or he gets out of debt to the business.

Illustrations.

1. Sold William Jones, for cash, two sacks of flour for $3.

Analysis.—Since William Jones paid cash for his

flour, this transaction had no effect on any personal indebtedness if the proprietor kept no account with a keeper of the funds. But, if the shop-keeper had an account with his cashier, this custodian became indebted to the business in the sense of responsibility or accountability to the extent of $3. Consequently, it should be debited, or charged, with $3.

2. Sold Charles Greene, on account, three sacks of flour for $4.50.

Analysis.—Charles Greene gets into debt to the business to the extent of $4.50. Therefore, we should charge him, in other words,—debit his account—with the $4.50, by entering that amount on the left-hand or debit side.

3. Bought from James Rhoades, for cash, 100 barrels of flour for $300.

Analysis.—Since cash was paid for the flour, the only personal account effected was that of the cashier. He got out of debt to the business to the extent of $300 by paying out that amount on proper authorization. Therefore, his account should be credited with that amount.

4. Bought from Hiram Cole 50 barrels of flour for $150.

Analysis.—In this case, the business gets into Hiram Cole's debt to the extent of $150. Therefore, his account should be credited with $150.

5. Received $4.50 from Charles Greene in settlement of his account.

Analysis.—By making this payment, Charles

Greene gets out of debt to the business to the extent of $4.50 while the cashier who takes custody of the money, gets into debt to the business. Therefore, Charles Greene's account should be credited with the amount that he paid, and the cashier's account should be charged.

6. Paid Hiram Cole $100 on account.

Analysis.—By making this payment, the business gets out of Hiram Cole's debt a benefit to the extent of $100. His account must be charged, and the cashier's, or the cash account, must be credited, because the cashier gets into debt to the business.

12. *Passing of the personalistic theory.*—When the business man came to think of the money or property rather than the *custodian* he soon forgot about the personalistic basis for his accounts. He began to build up accounts with various kinds of income or expenses. These accounts probably originated in memorandum form. For instance, the merchant would want to know how much he was paying his clerks, and he would keep a record of the payments in memorandum form. For the same reason he would keep a record of the sales of the various kinds of merchandise that he handled. Since the account was a very convenient form in which to present information of this kind, he probably built up his memorandum record of expenses or income in this same form.

Later on, the clerk or the bookkeeper was probably instructed to keep in the diary a permanent record of such transactions, and to accumulate them in the form

of an account in the same way in which he accumulated the accounts of wealth owned and amounts owed. The result was a confused system that contained many memorandum accounts, usually more or less inaccurate.

13. *Operating the single-entry book.*—There was no means of proving the accuracy of these accounts. Of course the balance in the cash account was checked by the balance of cash on hand, but if these balances did not agree the merchant could not determine whether his record was wrong, or whether there had been errors or theft in the cash transactions. The same may be said of all accounts that represented things owned, altho the debts due the merchant, as well as his debts to others, could be proved in part by a comparison of his records with those of the persons with whom he dealt. But the memorandum accounts of income and expenses were of little use, because of their inaccuracy.

One way in which single-entry bookkeeping serves the purpose of any accounting system is by showing the financial condition of the business. It has been explained that the financial condition is set forth by showing the relation of what is owned to what is owed. If the debts to be paid are less than the available funds with which to pay them, the condition is said to be good.

The business man can quickly ascertain his financial condition by taking from the ledger, a list of all debts due him, and of his own outstanding debts supple-

mented by a list of his other possessions (assets). Should he desire to know how much he is worth he need only subtract the total amount of all his debts from the total amount of the wealth that he owns. This same information in more accurate form could be obtained by an inventory of how much he owned, and how much he owed.

14. *Purpose and limitations of single-entry bookkeeping.*—Single-entry bookkeeping was used solely to aid the business owner in keeping a record of the details of his business. The various transactions which he wished to record in his accounts were noted in his diary. At convenient times he would post these items to the proper accounts in his ledger. Unfortunately for him, the amount of information obtainable from his books was little; moreover, he had no assurance of its correctness. He might have failed to record some transactions, or he might have entered the amount incorrectly. He had no way of checking his work except the laborious method of going over his postings a second time to see whether they were correctly made, and even when he made a thoro check in this way he frequently overlooked errors that had been made. After the abandonment of the Personalistic Theory, single-entry bookkeeping became a confused system of records which were valuable in themselves, but which were not complete enough.

15. *Method of converting books from the single to the double entry basis.*—The first step preparatory to

changing books from single to double entry is the preparation of a statement of assets and liabilities. With this statement as a basis a journal entry is made which records in the ledger the assets, the liabilities and the proprietorship. This gives a double entry ledger in which the debits equal the credits. The subsequent transactions of the business may then be recorded in double entry form as has already been discussed. If the ledger contains all these accounts already, there will be no need of any change beyond closing out these accounts and reopening them with their balance, after which double entry records instead of single entry records may be kept.

If, as is usually the case, the ledger is not complete, the accounts which are in the ledger must first be verified; and secondly, such new accounts opened as are required. At the same time there will usually be a certain number of memorandum accounts which in themselves may be a part of double entry records, but which are not complete. These accounts must be closed out either by a journal entry, or by ruling them off to indicate that they are no longer a part of the current record.

Various adjustments in the asset and liability account will also be necessary from time to time after the double entry method has been inaugurated. The first statement of assets, liabilities and proprietorship will frequently be obtained entirely from a physical inventory with but little reference being given to the ledger account. As a consequence this initial bal-

ance sheet may be more or less incorrect, and may require change as the business goes on.

As a rule it is better to introduce an entirely new set of books and to arrange the system of accounts to meet the demands and needs of the business. In other words, it is better to build up a system of accounting by the same method which is followed in constructing an accounting system for a firm just starting in business.

16. *Reconstructing double entry records from books kept by single entry.*—As indicated before, it is possible to prepare the commonly known profit-and-loss statement from books which have been kept by single entry. Let us suppose that the ledger of John Green which was kept by single entry, discloses the following information on the first and the last day of the current year:

	Jan. 1	Dec. 31
Plant and machinery	$23,000.	$24,000.
Furniture and fixtures	5,000.	5,500.
Merchandise stock	12,000.	10,000.
Accounts receivable	10,000.	12,000.
Notes receivable	3,000.	13,000.
Mortgage payable	12,000.	9,000.
Accounts payable	5,000.	18,000.
Notes payable	13,000.	16,000.
	$83,000.	$107,500.

An analysis of the cash books of John Green indicates that his cash receipts and cash disbursements may be classified as follows:

Receipts	
Accounts receivable	$28,000.
Capital paid in	6,000.
	$34,000.

Disbursements

Bank overdraft, January 1, 1916	2,000.
Plant and machinery	1,000.
Furniture and fixtures	500.
Expenses	4,000.
Salaries	2,800.
J. Green, personal drawings	5,000.
Notes payable	12,000.
Mortgage payable	3,000.
	$30,300.

In preparing a balance sheet and an economic summary for the year the first step would be to verify the assets and liabilities, adding any new items which may be discovered, and correcting those which require change. Suppose that the ledger records are correct excepting that there is a balance of $3,700 cash on hand, which is recorded only in the cash book; the next step will be to prepare a comparative statement of assets and liabilities and proprietorship. This is done as follows:

JOHN GREEN

Comparative Statement of Assets and Liabilities
December 31, 1916.

Assets	Jan. 1.	Dec. 31.	Increase	Decrease
Plant and machinery	$23,000.	$24,000.	$ 1,000.	$2,000.
Furniture and fixtures	5,000.	5,500.	500.	
Merchandise stock	12,000.	10,000.		
Cash	—	3,700.	3,700.	
Notes receivable	3,000.	13,000.	10,000.	
Accounts receivable	10,000.	12,000.	2,000.	
Total	$53,000.	$68,200.	$17,200.	$2,000.
Liabilities				
Mortgage payable	$12,000.	$ 9,000.		$3,000.
Bank overdraft	2,000.			2,000.
Notes payable	13,000.	16,000.	$ 3,000.	
Accounts payable	5,000.	18,000.	13,000.	
Total	$32,000.	$43,000.	$16,000.	$5,000.
Capital	$21,000.	$25,200.		

The reader will note that increases and decreases are shown here in assets. This is done in order that they may be checked against the analysis of the cash book and the two combined into a profit and loss statement. The profit for the period by the balance sheet method is $3,200. It is found that the capital has increased during the period $4,200 but that Mr. Jones paid $6,000 of new capital and drew out $5,000, making a net increase of capital invested of $1,000. This amount must be deducted from the increase in net worth in order to determine the amount of profit. The amount of profit might also be determined by taking into consideration the increases and decreases in individual assets. The following schedule brings the same amount of profit, namely $3,200 by grouping the increases and decreases of assets and liabilities:

Increase of assets		$17,200
Decrease of liabilities		5,000
		$22,200
Decrease of assets	$ 2,200	
Increase of liabilities	16,000	18,000
Increase in net worth as above		$ 4,200
New capital contributed	$ 6,000	
J. Green, personal withdrawals	5,000	
Net increase of investment		1,000
Profit for the period		$ 3,200

The information might be presented in the following form:

Resources acquired by:			*Resources Utilized for:*		
Consumption of assets of prior period:			Increase in fixed assets during period:		
Merchandise stock		$ 2,000	Plant and machinery .....$ 1,000		
			Furniture and fixtures	500	$ 1,500
Increase of debt:			Increase in liquid assets during the period:		
Notes payable..$ 3,000			Cash .....$ 3,700		
Accounts payable 13,000		16,000	Notes receivable 10,000		
			Accounts receivable	2,000	$15,700
Increase of capital investment:			Decrease of debt of the prior period:		
New capital ...$ 6,000			Mortgage payable .....$ 3,000		
Less withdrawals 5,000		1,000	Bank overdraft.	2,000	5,000
		$19,000			
Reinvestment of profits in the business		3,200			
		$22,200			$22,200

17. *Reconstructing individual accounts.*—It is now possible to reconstruct the individual accounts on the double entry basis so as to arrive at the amount of purchases and sales. The accounts receivable at the end of the year was $12,000. It is found from an analysis of the cash book that $28,000 were collected from customers during the year. The comparative statement of assets and liabilities indicates that there was an increase of $10,000 in trade notes receivable. This gives a total of $50,000, charged to account receivable for the year. However, at the beginning of the year there was a balance of $10,000, hence the net increase in "accounts receivable" for that period

must have been the difference between $50,000 and $10,000, or $40,000.

A schedule might be constructed which would present this information in continued form:

Accounts receivable at Dec. 31, 1916	$12,000.
Add cash collections	28,000.
	$40,000.
Add notes receivable increase	10,000.
	$50,000.
Deduct accounts receivable at Jan. 1, 1916	10,000.
Sales	$40,000.

The amount of the purchases may be arrived at in the same way by considering the balances in "accounts payable" at the beginning and at the end of the year, and the increase or decrease in "notes payable," as well as the amount of notes paid during the year. The schedule will take the following form:

Accounts payable at Dec. 31, 1916	$18,000.
Add notes payable paid	12,000.
	$30,000.
Add notes payable increase	3,000.
	$33,000.
Deduct accounts payable at Jan. 1, 1916	5,000.
Purchases	$28,000.

REVIEW

Why is bookkeeping necessary?

State the motives for the form which the journal has assumed, and for the use of other books of original entry.

What advantages resulted from the establishment of personal ledger accounts?

How was the idea of a personal account represented in the early forms of cash, merchandise and similar accounts?

What was gained by the introduction of single entry bookkeeping?

What are the disadvantages or limitations of this system?

Describe the method of changing a set of books from single to double entry. Why are entirely new books desirable?

Describe a method of reconstructing double entry records from books kept by single entry method.

CHAPTER IV

FUNDAMENTALS OF BOOKKEEPING—DOUBLE ENTRY

1. *Peculiarity of the merchandise account.*—Before the introduction of double-entry bookkeeping when an account with merchandise was set up, this account was debited when merchandise was purchased because the (probably fictitious) custodian of merchandise was considered as getting into debt to the business. Credits to this account were accordingly the sales of merchandise. When the balance in the merchandise account was considered in connection with the actual cost value of the merchandise on hand there was invariably a discrepancy between the value of merchandise indicated by the books and the value shown by actual count. Consider the following merchandise account in which explanations have been omitted.

MERCHANDISE

Dr.					Cr.
Mar. 1		$3,000 —	Mar. 1		$200.—
" 10		1,000 —	" 5		500.—
" 20		1,500 —	" 10		300.—
" 25		1,000 —	" 15		600.—
			" 20		400.—
			" 30		500.—

Here the debits represent the purchases of merchandise and the credits the sales. The former

amounted to $6,500, the latter to $2,500, leaving a debit balance of $4,000. The natural course was to conclude that this represented the value of merchandise on hand. But an actual count revealed merchandise which cost possibly $5,000. This discrepancy was doubtless puzzling until it occurred to someone that the merchandise which had been sold had been credited at selling value, whereas when it was purchased it had been debited at cost. The cost and selling prices represented two values which were widely apart. Since normally the merchandise was sold for more than it cost, it was discovered that the balance of the merchandise account tended normally to be less than the cost of the merchandise on hand—indeed, less by exactly the amount of profit on the merchandise that had been sold.

The merchandise account when interpreted in connection with the inventory of unsold merchandise, was found to represent a source of business profit—indeed, in a merchandising business, the principal source of profit. We might assume, in the illustration just given, that at the end of the business day merchandise to the amount of $4,700 was found to be on hand. It was evident that merchandise costing $1,800 had been sold for $2,500. The profit was therefore $700. It was noticed that by crediting the inventory to the merchandise account, this account then had a credit balance equivalent to the amount of profit made.

2. *Nominal Accounts.*—This information conveyed a valuable suggestion. Why not keep accounts with

the other sources of profit and with the causes of loss and expense? Such practice would enable the proprietor to know not only his net profit or loss for a given period, but also the income or profit from each source and the expense ascribable to each source of expense. This information furnished a valuable guide to business judgment and a valuable aid in enforcing economical operation.

Thus there came to be introduced the "economic accounts" which represented sources of income such as merchandise sales, and causes of expense such as merchandise purchases, salaries, rent, and the like. Opposed to these "economic" accounts which were the means by which the progress of the business was measured we have the "specific or financial" accounts which indicated the condition of the business rather than its progress. Land, buildings, accounts receivable from customers, accounts payable to creditors, proprietor's investment and the like are examples of specific or financial accounts.

3. *Double entry bookkeeping.*—Eventually every transaction was seen to have a double effect. If we sold goods for cash we decreased our supply of goods and increased our cash. The sale of goods represents income and must be recorded with the receipt of the cash. Moreover, when we pay cash for goods we must record the cash paid out and the receipt of the goods. Every business transaction must cause a change in our condition in that we give one article of value for another. This change in the rela-

tion of things owned and owed must be expressed. Moreover if the double exchange, consisting of exchanging money for something and later re-exchanging this for money resulted in our getting back more money than we gave up, a profit will accrue which we must express in our accounts.

4. *Fundamental principle of double entry bookkeeping.*—Thus, every transaction between the business and another party, whether in commencing a contract, performing it, or concluding it, involves the exchange of valuable rights and services. Either the right to some class of wealth is transferred or some service is received or given. Sometimes a property right is exchanged for another property right (merchandise for cash); sometimes a personal right is exchanged for a personal service (workman's right to receive pay for his work); sometimes a property right is exchanged for a personal right (the purchase or sale of goods "on account," or when the workman is paid). Theoretically, however, a property right is never exchanged directly for a service; for his services the hired workman receives the personal *right to receive money* from his employer, and the money when paid is given in exchange for this personal right. But in every case there is the exchange.

It must be borne in mind that many of these exchanges are of a compound nature, involving the exchange of two or more items for a single item or for two or more other items. For example: Merchan-

dise may be exchanged for cash, $10 and the right to collect cash (a debt) $40.

For bookkeeping purposes the *values* of the rights and services thus exchanged are always *considered equal.* If I give $500 cash for 1,000 bushels of corn, the corn received is considered as having the value of $500. If I buy 1,000 bushels of oats from A. Yeoman, promising to pay him $400 at the end of 30 days, the value of the corn is considered to be equal to the value of the personal right given in exchange for it. Since every business transaction is an exchange of equal values and, since we debit the accounts which receive the benefit and credit the accounts conferring the benefits, an important principle may be deduced, namely: in every transaction the sum of the debits is just equal to the sum of the credits; and vice versa.

5. *Recording the exchanges.*—Exchanges are recorded in bookkeeping records in two ways: (a) They are entered up in the diary or journal in chronological order. This entry is simply a memorandum entered at the time of the transaction and put on record before it is forgotten. (b) Subsequently, these transactions are analyzed, their effects determined and debts and credits are assigned to the proper accounts accordingly.

In this way we express every effect of a transaction. If our exchange is complex, such as the giving of money for two different kinds of goods, say, merchandise and furniture, we must value two kinds of

goods and services separately, and record their total as equal to the cash paid. In this case the credit to cash would just equal the charges to the furniture and goods accounts.

Since for every debit we make a credit of an equal amount and vice versa, the sum of all the debits made must equal the sum of all the credits made during the same period of time. This enables us to prove the accuracy of our work but only to a limited extent. After the effects of transactions have been classified into the accounts, we make a partial proof by testing the equilibrium of the debits and credits entered in our ledger. This test, which is called a trial balance, is by no means absolute proof that all work has been done correctly. In Chapter IX the reader will find a thoro discussion of the trial balance and its uses.

6. *Assets and liabilities.*—Before going further it will be well to settle upon the meaning of various accounting terms which will be used. The accounts appearing on the books of an enterprise may be divided into the following classifications: (1) assets, (2) liabilities, (3) income or revenue, (4) expenses or losses, (5) proprietorship.

An asset is any valuable right possessed by a business. Land, buildings, amounts due from customers and the like are assets.

The right which others have to demand money from us is a liability. Amounts which we owe our creditors, notes which we have given and the like are liabilities.

7. *Income and expenses.*—Revenue or income consists of what the business receives as a result of its operations of buying or acquiring at one price or cost and selling at the same or other price. Income accounts are those accounts which show the sources or causes of income. For instance, if we sell John Smith 100 barrels of flour for $450 cash, our income is $450. The credit of $450 to a merchandise or sales account records this source or cause of income. If the sale were made on 30 days time (without right of deduction for immediate cash), the credit to "merchandise" accomplishes the same thing; but in this case the *receipt* of the income is deferred. Since our business is that of buying and selling flour our progress is denoted in part by the amount of these credits.

The term income is probably better than revenue because the latter is more frequently associated with public finances.

Expenses are outlays made to carry on the business or, rather, they are the costs of income. Expenses are incurred because the owner believes that the resulting income will exceed these expenses. The expenditure of the money does not necessarily precede the obtaining of the income, indeed it often follows it. For instance *during* the month sales will be made by clerks for whose services in making them payment will not be made until the tenth of the following month. Yet the cost of these services is a part of the cost of this income and must be so counted on the basis of the contractual right obtained by them in the very act of

rendering their services. The same is true of the merchandise itself, for which payment may not yet have been made. The dealer cannot justly say that his profit for the month is the difference between his sales and his cash expenses plus the cost of his merchandise. He must consider the unpaid costs incurred in making his sales.

Gain or profit results when the total income exceeds the total expenses. Loss results when expenses exceed income. It follows, therefore, that the income and expense accounts measure the profitableness of a business, while the assets and liabilities indicate its financial condition.

We have one other class of accounts to consider. The shopkeeper or other business man contributes funds to his business from time to time, either because of his original investment or to provide additional funds at subsequent dates. Also he will probably withdraw a part of his profits each year and leave a part in the business. The profits which are not withdrawn become an increase in his investment.

An account must be kept with the proprietor's withdrawals, his investments and his reinvestments of profits. These are not assets or liabilities of the owner, as no one can owe himself. They are simply the accounts which measure the net worth of the business. Their total must be the difference between the true assets and liabilities.

8. *Universal rules of debiting and crediting.*—The following are the universal principles in the science

of accounts which govern all business transactions to which debits and credits apply:

(a) Debit the account with that which comes into the business or costs the business value.

(b) Credit the account with that which goes out of the business or produces value for it.

Many special rules applying to particular accounts have been devised, but all are but special applications of the above stated general principle.

Reference to the evolution of double from single entry gives a rational derivation of this rule. The cashier got into debt to the business when money came into the business because this money was placed in his custody. He got out of debt to the business when money went out, for it was obtained from him and he thereby discharged his responsibility for it. Likewise the occasion on which the supposed custodian became indebted to the business was that on which merchandise came in, and the occasion on which he discharged his indebtedness was when merchandise was obtained from his custody and passed out. The same is true of any other custodian. When these accounts ceased to be custodianship and became accounts with property, the basis of debts and credits changed from that of creating and discharging indebtedness to that of inflow and outflow of valuable rights and services.

Since, as we have already seen, every business transaction is an exchange, that which comes into the business costs that which goes out, and that which goes out may be said to produce that which comes in.

9. *Application of the general rule.*—The application of the general principle in assigning the debits and credits which result from a given transaction or operation, involves three steps for each, namely:

(a) In assigning the debits:
   1. Determine specifically what comes into the business or costs it value, reducing this item or items to concrete things, such as a piece of land, wagon, laborer's services and the like.
   2. Determine what accounting class on your records is intended to include this item or items.
   3. Debit that account.

(b) In determining the credit:
   1. Determine specifically what goes out of the business.
   2. Determine what accounting class includes this item.
   3. Credit that account.

Of course, many transactions and operations will involve more than one debit or credit.

10. *Examples.*—Bought 1,000 bushels of oats for $400 cash.

Analysis: 1,000 bushels of oats came into the business. The accounting class which includes oats is, say, "grain." Therefore, we will debit that account with $400. As four hundred dollars of money goes out of the business and money is included in the class

"cash" the cash account should be credited with the $400.

2. Bought of S. P. Jones on 30 days' account, 1,000 bushels of wheat for $800.

Analysis: 1,000 bushels of wheat came into the business. Wheat belongs to the accounting class, "Grain." Therefore, debit the Grain Account. A right to collect $800 goes out to S. P. Jones. This right is included in an accounting class which, for obvious reasons, we call, "S. P. Jones." Therefore we credit the account, "S. P. Jones." This transaction involves an exchange of a personal right in favor of S. P. Jones for a property right in the merchandise.

3. Sold Addington Bruce 100 bushels of wheat on his 30-day note for $100.

Analysis: The business receives a right against Addington Bruce to receive from him on his note of 30 days, the sum of $100. This right is evidenced by a formal written promise signed by him. This formal evidence of debt represents a different relation than does a mere credit allowance; we therefore put this and similar items into a separate class, term it "notes receivable" and open an account of that name. Consequently, this notes receivable account is to be debited. The grain account should be credited.

4. My sales clerks have been working for me under salary and wage contracts, whereby I owe them $500.

Analysis: The business received these clerks' services during the month. The accounting class that includes these services probably would be named "sales clerks' salaries." Therefore the account "sales clerks' salaries" is to be debited. On the other hand, the clerks receive the right to collect $500 from us. If we wish to show evidence of this debt but do not pay it at this time, we record the right of these clerks to the money due them, by crediting either their personal accounts or the general pay-roll account.

5. Paid my rent for the ensuing month, amounting to $150.

Analysis: The business receives the right to use the premises during the ensuing month. This right may be included in a narrow class, which we may name "rent" or in a broad class which we may name "expense." The rent or expense account is debited accordingly. Money goes out. Money is included in the class, "cash." Accordingly the cash account is to be credited. Note that strictly speaking the right to use the premises during the ensuing month is an asset and might be included in a different class. As the month elapses the use of the premises—a service—is received and the *right* to use gradually expires. Thus indirectly the money paid for the *right* to use becomes the cost of the service received and an expense. For practical purposes we debit the expense account immediately.

It will be seen that a debit entry must represent one of five things:

(1) An increase in assets.
(2) An expense or loss.
(3) A decrease of an existing liability.
(4) A decrease in income.
(5) A decrease in amount of proprietorship.

A credit entry must represent one of the following five results:

(1) An increase in liabilities.
(2) Income.
(3) A decrease in an existing asset.
(4) A downward revision of a previous recorded expense or loss.
(5) An increase in amount of proprietorship.

11. *Sub-divisions of merchandise account.*—We referred, in a previous section, to the peculiar nature of the merchandise account in that the debits to this account were made on the cost basis while the credits were on a sales basis. The components of the merchandise account are somewhat as follows:

MERCHANDISE ACCOUNT

Debits	Credits
Inventory on hand	Sales
Purchases	Returned purchases
Returned sales	Inventory at the end of the period covered.

In this form, the merchandise account meant little to the shopkeeper until after he had analyzed it and

segregated the various charges or credits into classifications containing like items. It will be noted also, that, frequently, there will be found still other kinds of charges or credits than we have given in our example above. Consequently, instead of analyzing this account at the end of every month or year, or whatever other period for which the account was examined, separate accounts were set up. For instance, we would have as our debit accounts, "merchandise purchased," "inventory of merchandise on hand," "returned sales" and the like. Our credit account would be "merchandise sold," "returns of merchandise purchased" (by us), etc.

12. *Advantages of the double entry system.*— Double entry bookkeeping provides a well-rounded system which contains accounts for every item of wealth possessed by the business, for every debt owed by the business and for the proprietor's investment in the business. Separate accounts are provided for his expenses, thus classifying these expenses as minutely as he finds necessary. In the same way, his income is classified into various accounts, which will show the different sources from which this income is obtained.

How detailed these subdivisions of income and expenses will be, depends upon the kind of business and the needs of the owner. We will consider this phase of our subject later on; for the present we need only remember that no account should contain several different items since the effect of changes in one item must be offset by opposite changes in another. For

instance "expenses" is too general a term. The items making up our expenses should be classified into "salaries," "rent," etc.

As compared with single entry, double entry bookkeeping is obviously immeasurably superior. It records all the facts and results, whereas single entry records only some facts and no results. It analyzes the business transactions in such a form that a complete record of causes of expense and sources of profit is available. At the same time the principle of equality between debits and credits offers a partial proof of the accuracy of the work.

REVIEW

What is the fundamental principle which underlies the system of double entry bookkeeping?

How may the accounts, kept in the books, be classified?

State the general rules of debiting and crediting and give reasons for them.

What operations does each entry involve?

Why is a single merchandise account or a single expense account undesirable?

What are the advantages of the system of double entry bookkeeping over that of the single entry method?

CHAPTER V

BOOKS OF ACCOUNT

1. *Why entries cannot be made directly in ledger accounts.*—The debits and credits connected with each business operation might, of course, be recorded directly in the accounts affected, but such a system would entail certain dangers that should be noted.

The first main objection to the adoption of this system is, that in assigning the debits and credits for a sale of wheat, for example, amounting to $100 to a customer, Smith, the merchant might assign to Smith's account, and record in it, the debit of $100, but he might forget to record the credit of $100 in the account representing "sale of wheat." Or, the seller might make the entry on the debit instead of on the credit side of this account. A test of the ledger debits and credits, in the form of a trial balance (see Chapter IX), would reveal the fact that an error had been committed, but it would not help find it. Or, in a moment of carelessness or mental confusion the merchant might enter the debit in Greene's account instead of in Smith's, or in A. B. Smith's account instead of in that of W. M. Smith. Or even if the seller made all these entries on the correct side of the proper accounts,

he might enter $100 in one account and $110 in the other.

It is essential to have a system which will tend to reduce such errors to a minimum, and which will assist us as much as possible in locating errors when they have been committed.

The second objection to the system is, that if bookkeepers are permitted to make entries directly in the accounts without giving properly authorized supporting explanations, a dishonest cashier who had access to the books might appropriate $100 and cover his theft by the insertion of a credit of $100 in the cash account and a debit of $100 in some expense account. Or he might make any number of arbitrary transfers from one account to another. There is need of a mechanical routine that will make it as difficult as possible for a dishonest person to conceal theft by manipulating the accounts.

2. *Necessity for detailed records.*—In order that these difficulties may be obviated, books are used in which a record of each transaction is made at the time it occurs. Such a book was formerly known as the day-book (diary). The entries in this book were simply descriptive histories of the transactions, set down before the details were forgotten. From this book the entries were made in technical form in the journal.

In the journal the debits and credits were systematically assigned to the proper accounts and in the double-entry form of record. At present, however,

the day-book, as constituting a story of the transactions, has been practically abandoned. The entries are now generally made directly in the journal, where all the necessary history is given. From the journal the debits and credits are compiled in the various accounts in the ledger.

3. *Books of preparatory entry.*—The books in which these preparatory assignments of debits and credits are made are called "books of original entry," an expression which is applied to the original records of business transactions which are the only ones acceptable as evidence in court. The reason why the expression, "books of original entry," is a misnomer, is that usually the explanations written in these books are only copied or condensed from a previous record of the transaction. Bills, invoices, check-stubs, vouchers and the like constitute the true original records. Better names for these books are "books of preparatory entry" or "posting media." The day-book, as it was originally used, was a true book of original entry.

In the journal the arrangement of debits and credits is somewhat as is shown on the next page. Several different entries are journalized; the examples are taken from the transactions given in Chapter III. The illustration also shows a standard form of the simple double-columned journal ordinarily used.

4. *Form of journal.*—In the illustration given above it is shown, in the first transaction, that the grain account is to be debited, first, by writing the name of that account in the left-hand (or debit) half

March 191—		DEBIT		CREDIT	
—1—					
Grain dr.	69	$400	—		
To Cash	27			$400	—
Bought of_____1,000 bu. oats for cash					
— 2 —					
Grain dr.	69	800	—		
To S.P. Jones	31			800	—
Bought 1,000 bu. wheat 30 day credit					
—2—					
Notes receivable dr.	35	100	—		
To Sales of Grain	26			100	—
Sold Ad. Bruce 100 bu. wheat @ $1 on his 30 day note					
—3—					
Sales clerks salaries dr.	39	500	—		
To Payroll Payable	38			500	—
For amount due my sales clerks as salaries for the month.					
—4—					
Rent and lighting dr.	30	150	—		
To Cash	27			150	—
Paid bill of_____today					

of the wide column used for account names; and secondly, by writing the amount in the left-hand or debit money column. Similarly it is shown that the cash account is to be credited, first, by writing the name in the right-hand or credit half of the account column, and secondly, by entering the amount in the right-hand or credit money column. These are the conventional methods of indicating the accounts to be debited or credited.

The date of each transaction is written just above it, in such a way that the date numbers separate the transactions. This is a good method, altho the left margin and the narrow column next to it are sometimes used for recording these dates.

5. *Posting.*—In the illustration, the figures in the narrow column at the left of the amount columns are "posting checks." A posting check indicates two

things, viz.: (1) the transference of the amount opposite it to the ledger account named; and (2) the ledger page on which the account is to be found. Thus, the figure "69" opposite "grain," on the first line, indicates that the $400 has been posted to the debit side of the grain account, which is found on page 69 of the ledger. The absence of any check opposite "cash," in the last transaction, indicates that this credit to cash has not yet been posted to the cash account.

The grain account, on page 69 of the ledger would look as follows, as far as the two entries posted from this page of the journal are concerned:

Grain Purchases

191–											
Mar.	1	To cash	J. 10	$400	—						
Mar.	2	S.P. Jones	J. 10	800	—						

When the debit from the journal is transferred, the amount is entered in the left-hand or debit money column. The entry, J 10, in the narrow column to the left indicates that this item has been posted from page 10 of the journal. The date of the transaction is written in the date column, and the name of the "offsetting" credited account is written in the wide or explanation column.

The insertion of the name of the opposing account is old-fashioned, a survival from the time when the only check on the accuracy of the entries was a de-

tailed comparison of the debit entries with the corresponding credit entries, and vice versa, to see whether the entries in the opposing accounts had actually been made. Today, except in the case explained below, one very seldom makes such cross comparisons but, instead, tests the equilibrium of the total debits and credits by means of a trial balance (see Chapter IX). Hence these insertions have come to be regarded as useless labor, and have, for the most part, been abandoned.

In posting to personal accounts, however, the insertion of the names of the opposing accounts serves a useful purpose. It is useful, for instance, when a credit is posted to a customer's account, since it shows the basis of the credit—cash received from him, a note, or whatever else it may be. A subsequent reference to this account will show not only the balance in the account, but also the nature of the transactions that have resulted in that balance.

Probably the best procedure to follow when posting, is to post in order all the debits, and then all the credits. This minimizes the danger of posting any item to the wrong side of an account—a mistake which is likely to occur frequently when debits and credits are posted alternately.

As soon as the transfer of any item to the ledger account has been completed, the number of the ledger page to which the transfer has been made should be written opposite that item in the posting medium before the next item is posted.

6. *Routine of recording.*—All transactions resulting in monetary changes in the condition of a business must be recorded in a journal. A routine should therefore be provided by means of which this information may be collected in a form in which it can be properly recorded. It is not always convenient or feasible to make the journal record immediately after the transaction occurs, since entries will probably be made at certain times of the day, and there will be usually several persons engaged in transacting business, while only one will be charged with the duty of writing up the records.

Incoming bills, copies or memoranda of transactions with creditors, check stubs, or carbon memoranda of cash payments, incoming payments on account, etc., are the true original records, and these must pass thru the bookkeeper's hands to be recorded. Memoranda of all other transactions—such as the receipt of a note to apply to a customer's account, allowance of a special discount, and the correction of errors—must also be recorded by the bookkeeper. In nearly every case there will be a letter, or a copy of a letter, referring to the transaction. Under such circumstances the original should go to the bookkeeper, in order that he may be familiar with all facts, and also in order that there may be less chance of error than if the information were copied and recopied before he received it.

7. *Books of subsequent entry.*—The books of the second class are known as "books of subsequent entry." These are the books in which the detailed rec-

ords in the books of preparatory entry are classified and summarized in account form. Just as a journal is a book of preparatory entry, the ledger is a book of subsequent entry. Since entries in the ledger are supported by the detailed information in the journal, it is unnecessary to transfer the complete history of each transaction to the ledger.

When accounting records are submitted as evidence in court, the ledger accounts will be accepted only on the condition that they shall be verified from the original records. The law, as a rule, requires that a continuous chronological record be shown—a record that is the compilation of memoranda made at the time each transaction occurred. A ledger account may be easily changed by subsequent entries or by manipulation, and therefore has not much standing as evidence. But in the journal the entry is made when the transaction occurs, or immediately afterward, and cannot be changed later unless a new entry is inserted or the first one is altered; in either case it would be evident that a change had been made.

In the ordinary form of ledger a page is devoted to each account. For instance, the merchandise account illustrated on page 72 would make up one page of the ledger. Sometimes, however, four or more accounts may be grouped on a single page. The amount of space that shall be given to an account will be determined by the size of the ledger and the number of items that make up each account.

8. *Memo books.*—The books of account of the third

and last class are the memo books. In every business many records are kept which do not pertain directly to the financial books. These records are usually simply memoranda of facts that will require attention at some future time. They are therefore kept in special memo books. These books furnish a record of details to which space cannot be devoted in the principal accounting books. The order book, and the book for the record of notes receivable and payable are good examples of the memo type. Illustrations of the form of draft books and note books are given below:

FORM OF DRAFT BOOK.

$.....	Perforated and cut here	$..... New York, N. Y.....191..
Drawn on		..... days (months) after sight (date)
In favor of		pay to the order of .....
Time		the sum of .....Dollars,
Payable at		Value received and charge to the account of,
On account		To M..... .....
.....		.....
.....		
#.....		

FORM OF NOTEBOOK.

Given to	Perforated and cut here	$..... New York, N. Y.....191..
Date of paper		..... days (months) after date .....
Time		promise to pay to the order of .....
When due		..... the sum of .....
Where payable		Dollars at .....
Payment on account.		for value received.
.....		.....
.....		
#..... $.....		No.....

9. *Subsidiary journals; general characteristics.*—It is a monotonous and an expensive process to write for each transaction or operation the name of each account to be debited and of each account to be credited, and to post each of these debits and credits separately to their respective accounts. In almost every business there are certain transactions that occur frequently and certain accounts to which many debits and credits are posted.

The reader has probably noted the frequent debits or credits to "cash" and "merchandise" in the illustrations given in the present chapter as well as in earlier parts of this Text. Because all records pass thru the journal, the name of each account must be written whenever the account is used, and each entry must be posted separately. It is evident that much of the labor of posting to these accounts could be saved by totaling the debits and credits in the journal and posting these totals instead of the individual items.

The only difficulty arises with the question, How are the transactions for each account to be grouped? The journal is, as we have termed it, a book of preparatory entry. If the term, "journalizing," be broadly interpreted, it may be defined as the process of making any preparatory assignment of debits and credits that are later to be assembled in the ledger accounts. It does not matter, then, in what form the assignments of debits and credits are prepared, so long as complete information about each transaction, is given and so

long as the accounts and amounts to be debited and credited are clearly designated.

It has been found that the simplest method of grouping the various entries that occur frequently for such accounts as "cash" and "merchandise," is to divide the journal into several books. Each book will be a separate journal, with all the characteristic features, but it will record only a part of the transactions of the enterprise, instead of all of them. Let us now consider the standard subsidiary journals.

10. *The cash book.*—The following definition of a cash book is perhaps sufficiently adequate and comprehensive: A journal or posting medium devoted entirely to a record of cash transactions. In the usual form of cash book, the debits and credits to cash are entered on separate pages. Customarily, cash debits (i.e., receipts) are recorded on the left-hand page and cash credits on the right-hand page.

In the simplest kind of cash book, there are two money columns on each page, the left-hand column for individual amounts, and the right-hand column for periodic totals. Forms of simple cash book pages are shown on page 86.

11. *Cash debits.*—As before intimated, every entry in the cash book (cash journal) must express a debit and a credit. At first inspection, it may appear that but one phase of this relation is expressed in the forms illustrated. It should be remembered, however, that this book records no transactions that do not increase or decrease the supply of cash. Thus the first entry

CASH DEBITS (RECEIPTS)

DATE		L.F.	ACCOUNTS CREDITED	EXPLANATION				
March	28		Balance bro't forward	Cash on hand			$1,200	—
	28		John Brown	Rec'd on acc't	$100	—		
	28		Notes receivable	Payment of Wm. Greene's note due today	325	—		
	28		Merchandise Sales	Cash sales today	175	—		
	28		Notes payable	Borrowed on our 30-day note	1,000	—		
						—		
							1,600	—
							$2,800	—
March	29		Balance bro't down	Cash on hand			$1,267	50

CASH CREDITS (PAYMENTS)

DATE		L.F.	ACCOUNTS DEBITED	EXPLANATION				
March	28		Hiram Smith	Sent check on account	$500	—		
	28		Sales clerks' salaries	Week ended March 28	200	—		
	28		Office salaries	Week ended March 28	75			
	28		Notes payable	Paid our note favor First National	750	—		
	28		Interest on Notes payable	Paid interest on above note.	7	50		
							$1,532	50
			Balance down	Cash on hand			1,267	50
							$2,800	—

(after the balance has been brought forward) records the fact that the business received $100 cash from John Brown to apply on his account. According to the rule for assigning debits and credits, the cash account must be charged with $100 because cash comes into the business, and John Brown's account must be credited with $100 because a right to collect $100 from him ceases or "goes out."

Both sides of this transaction have been recorded by entering the name, John Brown, with an explanation and the amount of his payment on the left-hand page of the cash book. The amount, $100, written in the left-hand money column may be considered as primarily a debit to cash, since it is written on the cash-debit page. Secondarily, it is to be interpreted as a credit

to John Brown, since his name is written in the "account-credit" column; the entering of his name there indicates the complementary credit that off-sets the charge of $100 to the cash account. Similar observations apply to the other three accounts named in the cash-debit column.

The total of the four cash-debit items for the day is $1,600; this total is written in the right-hand, or total money column. It is evident that in posting to the debit side of the cash account it is possible to post this $1,600 instead of four separate items composing it. This method substitutes, in the present instance, one posting to cash instead of four. In actual practice, one total may sometimes be substituted for fifty or sixty individual amounts, or, where no posting to the cash account is made until the end of the month, one total may be posted to the debit of the cash instead of the many individual amounts received during the month. It is only necessary to carry the cash-book page totals forward from day to day until the end of the month is reached.

While it is thus possible to avoid posting these individual amounts to the debit of cash, it is not possible to avoid posting the individual credits, if this form of book is used. The journal process of designating these transactions is completed when the cash account has been charged with the total cash received, and the individual accounts with the things or persons that produced the values making up this total, have been credited. We would have to credit John Brown's ac-

count, and the notes-receivable and notes-payable accounts with the cash received from them. The credit to the cash-sales account need not be considered at this time; it will be explained later. The pages of each account in the ledger are designated in the cash-book column headed "L. F.," which means ledger folio.

12. *Cash credits.*—Just as the left-hand page records cash receipts, the right-hand page shows cash payments. We have, then, a duplicate of our ledger account in our cash book. Some business houses omit the cash account entirely from their ledger because they have in their cash book the same information that it gives. This practice, however, is not to be commended. The ledger should contain a complete summarized record of the condition and the operation of the business. The first item on the cash-credit page, in the illustration given, records the fact that a check was sent to Hiram Smith for the amount of $500 to be applied to the debt that the business had incurred. According to the rule for journalizing, we see that the account with Hiram Smith is to be debited because a right held by him against the business has ceased or "come in," while the cash account must be credited because cash goes out. The fact that this payment was made by check does not, of course, alter the rule, since "cash" includes not only cash on hand but cash in bank. Therefore, the $500 written in the left-hand money column of the credit page of the cash book is primarily a credit to cash. Secondarily, it is a debit to the account with Hiram Smith, and this fact is in-

dicated by writing his name in the account-debited column.

13. *Cash credits further illustrated.*—The second item records the fact that for the week ending March 28 the amount of $200 was paid out for sales clerks' salaries. The writing of this amount indicates a credit to cash and a debit to another account, which, in this case is "sales clerks' salaries."

The fifth entry, which records the payment of the principal and the interest of a note that has fallen due, must be handled differently. When this note was given, "notes payable" was credited and some other account, was debited. Whether or not "cash" was the account debited, depends upon whether the note was given in settlement of a debt or in exchange for cash. It should be noted that there is a debit to "cash" and a credit to "notes payable" on the left-hand side of the cash book, on page 86. This explanation illustrates the method by which the exchange of a note for cash is recorded. A total of $757.50 must be paid to cancel the indebtedness of the business in connection with the maturing note, but this indebtedness is divided into two parts, and the indication is made that $750 is paid for the note, and $7.50 for the additional claim, called interest, which the bank holds against us by virtue of our contract with it.

There are two purposes upon which this separation of the indebtedness is based. The first is, (1) that after the posting to the debit of the notes-payable account has been completed, the previous credit of

$750 shall be offset; it is now wiped out. This is done in order that the notes-payable account may always show the value of the notes outstanding. The second purpose is to have a separate record of the amount paid out for interest, which represents incomes shared with some one else because of operation on borrowed capital. There should be a separate account in the ledger, covering interest, to which this $7.50 should be charged.

The total of the cash payments is extended into the right-hand money column and may be posted, in total, to the credit of cash, instead of individually for each item. The same saving in time and posting results from the operation of the credit page of the cash book as was shown, in the previous discussion, to result in the case of the debit page. Monthly postings, if properly made, will be equally satisfactory. However, in order that the double-entry form of recording may be complete, the debits must be posted separately to the various accounts named in the account-debited column.

14. *Sales book.*—Sales of merchandise result primarily in credits to the merchandise account. It is, however, more satisfactory to record these in a separate account, in order that their total may be ascertained without being confused with any other items. Consequently, a separate account is opened, which is called "merchandise sales." All records of sales can now be segregated in one book, which will be a sales journal or a sales book. Right-hand and left-hand pages are not specified in this book, since no debits to

the sales account will be recorded here. There will be simply a record of every sale that constitutes a charge against the purchaser and a credit to "merchandise sales."

The following form illustrates the use of a separate sales book:

Mar. 28	Wm. Jones, on acct. 30 das.				
	10 bbls. Flour	at $4.00	$40.		
	1,000 lbs. Sugar	at 5¢	50.	$90	00
Mar. 28	Notes Receivable—sold				
	Sam'l Greene on 30-day note				
	20 bbls. Flour	at $4.00	80.		
	2,000 lbs. Sugar	at 5¢	100.	180	00
Mar. 28	John Read on acct. 30 das.				
	5 bbls. Flour	at $4.00	20.		
	500 lbs. Sugar	at 5¢	25.	45	00
	Cash sales			175	00
Mar. 31	Total sales			$490	00

In the first transaction, the business sells to William Jones $90 worth of merchandise. His account must be charged and the sales account—or the merchandise sales account—must be credited. In the case of the second transaction, "notes receivable" is charged, because Samuel Greene gave his note as formal evidence of the fact that he owed the business $180. The record of the transaction with John Reed is handled in the same manner. It is evident that the total credit to the sales account at the end of the month is equivalent to, and is offset by, the various charges to the individual customer's accounts.

Since the sales book is devoted entirely to the recording of merchandise sales, every account extended into the total column may be viewed as constituting a credit to the sales account. Therefore it is unneces-

sary to post such amounts separately to that account. In the case that is illustrated, the total of $490 for the day's business could be posted to the merchandise sales account in one item, and thus all the sales for that day could be recorded the same way. By carrying the total forward to the end of the month, one posting could be made to the sales account which would credit it for all the sales made during that month.

15. *Cash sales.*—It will be remembered, that, in the discussion of the debit page of the cash book, illustrated on page 86, the treatment of the money received from cash sales of merchandise was temporarily ignored. It is to be noted that the same item of $175, cash sales, is recorded in the sales book and in the cash book. This is done because our sales book should record all the sales made. At the same time, the amount of cash received must be entered in the cash book, in order that it may contain a record of all cash transactions.

Of course, all these transactions are carried on with individuals, and when the sale is made the customer may be charged and the sales account may be credited thru our sales book. Also, for the purpose of recording his payment, his account might be credited and "cash" might be charged thru the cash book. But this would mean a waste of time, since the customer pays cash at the time he makes his purchase. The credit to the sales account may be expressed in the sales book, and the debit to the cash account in the

cash book, the debits and credits to the customer's account may be omitted, as the former will offset the latter. Consequently a check-mark is entered in the ledger folio opposite the items under both these heads, to indicate that they will be posted in total only, since the complementary debit and credit are in separate books.

16. *Returns of merchandise sales.*—The few cases in which a customer returns merchandise to be credited to his account can be handled directly thru the journal by charging an account headed "returns of merchandise," and crediting the customer. If the number of these returns is excessive, a separate book can be used for recording them. This book should be known as Merchandise Returned Book, and should be operated on the same principle as the sales book, except that each entry should represent a debit to returns of merchandise and a credit to the customer. The debits should be posted in total and the credits individually.

17. *Purchase book.*—It should be noticed that the cash and sales transactions have been entirely withdrawn from the main journal and recorded in separate books. What has been said regarding the use of these books may be applied, also, in a general way to the use of a book devoted entirely to recording purchases. If there are many purchases, a purchase book should be used. The method of making entries in this book would be the same as that which was explained in connection with the sales book; the purchases for the month would be charged, in total, to the merchandise

purchased account. The offsetting credit to the firms from which these purchases were made would be posted individually to each firm's account.

The total of the charges to purchases should equal the total of the individual credits to the respective creditors. Cash purchases would be recorded as a charge to purchases in the purchase book, while the offsetting credit would appear in the cash book as a credit to cash. The debit in the one book offsets the credit in the other, and the individual posting of each record need not be made. This is an application of the principle already outlined under the discussion of cash sales.

This specialization in books relieves the journal of most of its burden. Indeed, altho a book bearing that name continues in use, its function is confined to the recording of a few miscellaneous transactions, like the receiving or giving of notes on account, and to the adjustment and transferring of items from one account to another. This, of course, involves the correction of errors and similar processes. In order that this book may be distinguished from the specialized forms of journals, it is usually known as the main, or general, journal.

18. *Method of operation.*—The details of the system of gathering accounting information for the bookkeeper's use will vary with the individual conditions and requirements of each business. But when this information reaches the bookkeeper, he always classifies it according to the divisions in his books; he then

makes the entries in each book separately. It is customary to enter the sales and cash books daily. At the end of every day the balance as shown by the cash book should be compared with the balance of cash on hand, plus the amount in the banks, as shown by the check books. The balance of cash as shown by the cash book, is, of course, the difference between the debit and the credit side of that book.

The purchase book will ordinarily be entered about once each week; the journal may be written up even less frequently. It should be remembered, however, that if merchandise returns are recorded in the main journal, they must be entered and posted to the customer's accounts before the status of any individual account can be determined.

The detailed posting to these accounts is generally made at regular intervals. The total debits and credits to "cash," total credits to "sales," total charge to "purchases" and total charges to "return of merchandise" need not be posted until the end of the month, when one posting for the entire month's transactions can be made.

REVIEW

Why are transactions not entered directly to ledger accounts?

What is a day book?

What kind of journal is used when only one is kept?

What three classes of account books may be distinguished, and what is the importance of each?

Give the reasons for establishing subsidiary journals, and describe the method of keeping cash, sales and purchase books?

CHAPTER VI

CLASSIFICATION OF ACCOUNTS

1. *Importance of correct account classification.*— Accounts are the basis of any accounting system. The success with which they portray the effects of business activities indicates the value of the system itself. Accounts might be likened to separate reservoirs in which the records of the results and the effects of transactions are collected and retained.

It is evident that if an accounting system is to fulfill the purposes for which it was established, the classifications of the transactions and the terms applied to them form important features of the system. Incorrect or indefinite terminology of accounts will stultify the most elaborate system. The Interstate Commerce Commission, for example, requires certain information about the business operations, the financial operations and the financial condition of the railroads in the United States. In order to obtain intelligible information, the Commission was compelled to name and to define carefully all the accounts which would be required of the railroads. A booklet issued by the Commission covered these points, it gave the title of the account and a detailed listing of every item to be charged or to be credited to it. The same care, the

same study and the same thoroness will be required in the installation of a set of accounts for use in any business.

2. *How to build a system of income and expense accounts.*—The first step in installing a system of accounts is to analyze the business covered, and the purposes which are to be accomplished. In this analysis it is necessary first to classify all income with reference to its source, and secondly, to classify all expenses or costs with reference to the incomes of which they are the cost. In every business the greater part of the expense will consist in the cost of acquiring or handling some commodity which forms a part of the business operations. This cost may be the manufacturing, the purchasing, the storing or the selling cost. The classification of the sources of income permits of a separation of the activities of the business. Thru the location of the costs connected with each source of income it is possible to divide expenses according to causes.

This classification of income and expense must be sufficiently detailed to give a clear and undisturbed record of each business activity. To a certain extent, increased classification of activities by accounts results in more detailed information, but it results also in a greater accounting expense. The question as to the extent that this detail may become of value must be answered by the management in each case. It is only possible to formulate the general rule that:

Classification in account-keeping should not be

carried beyond that point at which the additional detail of information to be obtained, will not be worth the additional expense involved in obtaining it.

3. *The value of detailed classification in accounts—an illustration.*—The following illustration indicates the value of a detailed classification of accounts. If a merchant is buying and selling "wheat and oats," he may be losing money on his sales of wheat and making money on his sales of oats. The losses on wheat may be practically off-set by the profits on oats. An examination of this account, in connection with the various expenses which had been ascribed to the purchase, storage and sale of wheat and oats, would indicate that it was unprofitable for the dealer to handle them as a part of his business.

On the other hand, if he carried one account for wheat and another for oats and had allocated to each commodity its proportionate expenses, he would immediately recognize that it would be unprofitable for him to continue handling wheat, but that he should push his sales on oats because he was making a profit on them. If he did not discontinue the sale of wheat he would then wish to take such measures as would result in his securing a profit on it. To secure this result he would either increase the price charged to customers or reduce the expense of handling wheat.

As already stated, the expenses, such as rent, salaries, storage, of a business, should not be grouped in any way to disturb comparisons of results. Expenses have two characteristics by which they may be classi-

fied. First, there is the nature of the expense—rent, heat, salaries, interest and the like. Separate accounts should be set up to indicate the amount of each kind of expense. Secondly, the classes are subdivided according to the sources of income of which they are a cost; salaries, for instance, should be subdivided to show the salary cost of wheat, oats, hay, barley, etc.

4. *Classifications of assets and liabilities.*—The first general rule regarding a classification of assets and liabilities is that it must give sufficient information. Accounts must not contain items of a totally different nature. Each account must include only the kinds of items indicated by its title, and the title should plainly indicate the nature of the items covered, without reference to any other records.

For example, the debts which are due a business establishment from its customers are separated into three divisions, namely: (1) good accounts receivable which includes all debts owed where there is at present no doubt but that the customer will pay; (2) doubtful accounts receivable which includes those accounts which are overdue or those of which there is doubt that they can ever be collected in full; and (3) notes receivable. These last items are carried in a separate account because the legal status of a note differs from that of a debt not formally evidenced. When a customer sends a business man a note in settlement of all, or part of his purchase, he has closed out his open account and transferred his indebtedness to

the form of a legal instrument, from which if necessary, the business man could obtain immediate funds thru the bank. As notes receivable represent a different class of debts from open or unsettled accounts receivable, they are recorded separately in order to make this distinction evident.

5. *Facts to be considered.*—In deciding upon the system of accounts to be used in any particular business such questions as the kind of business, the number and nature of the different activities carried on, the amount of business transacted, the sales of each commodity, the divisions of the enterprise (i.e., branches, departments, etc.), must be considered. The main principle to be followed is that of setting up enough accounts to furnish a complete history of every activity and every phase of the business. This information must be accurate and it must be presented in such a form that it may be relied upon without collateral support, or without reference to any other records, such as the posting media.

If the management is to interpret the progress of its business by the information which is obtained from its accounting records, the condition of any asset or any activity must not be disturbed by the fluctuations of any other. To illustrate, one frequently sees an asset account termed "buildings and machinery." This account, of itself, may mean very little. We will suppose that it contains a debit balance of $50,000 made up of $35,000 in machinery and $15,000 in buildings. The cost of each is the cost of the service which

it will render during its service life. But the building, being very durable, will render its service thru a long period of years. It depreciates slowly. The service life of the machinery on the other hand will be much shorter. It depreciates much more rapidly. Moreover, buildings possess a definite sales value while used machinery—especially if it is of a special type—may bring little or nothing at a forced sale. Therefore, in this case the account "buildings and machinery" might seriously mislead any one who attempted to determine the financial condition of the business by an examination of the accounts.

6. *Reducing transactions to accounts.*—The question naturally arises as to the plan on which accounts shall be based. In an earlier chapter the general account in which all commodities were included, was called "grain." In a small business, of course, the use of one general account would sometimes be sufficient. However, this seldom occurs and the necessity of classifying each commodity must be confronted. Thus, instead of one account called "grain," separate accounts are necessary as: "wheat," "oats," "rye," "barley," etc.

On the other hand, in allocating expenses to the various sources of income of which they form a part of the cost, it is to be recognized that the purchase cost of each commodity constituted a charge against the income received from that commodity. A certain part of storage and cartage expenses, insurance, salesmen's salaries, etc., would be applied directly

against each commodity. Under such conditions, each of these expenses would be separated into divisions corresponding to the source of income.

It is true that there are some classes of expense, such as salaries of administrative officers, salaries of office clerks, which cannot be ascribed directly to any single source of income. These expenses have one common characteristic, each is an item of expense entailed in conducting the business. They form a very broad class which may be represented by one account termed "general or miscellaneous expenses." Frequently, it is both customary and advisable to separate them into accounts which will include items of one kind only.

The obvious conclusion to this discussion is: In every business some person should prepare a system of accounts, naming all the classes of accounts to be used, and carefully defining each class and each account within the class that has been set up. The bookkeeper should always use these classes and these accounts exactly as defined. If new transactions arise, he should ascribe them to a particular class of accounts and then, if necessary, open up a new account within that class to take care of that particular transaction.

7. *Kinds of accounts.*—In Chapter III, we defined assets, liabilities, revenues and expenses. These are the four main divisions of the accounts appearing on the books of a business enterprise. Accounts are themselves variously classified with the view of combining those which have the same general purpose.

In the first place, all accounts may be divided into two main divisions:

1. Personal.
2. Impersonal.

Personal accounts, as their title implies, record all dealings with persons. They may be assets, liabilities or proprietorship accounts. The impersonal accounts record transactions as they relate to and affect the business and not as they affect persons. These impersonal accounts may be further sub-divided into (1) economic; (2) specific or financial.

Economic accounts relate to the economic condition of the business. They indicate whether the business is progressing or retrogressing but do not represent any tangible thing. They are the income and expense accounts, which indicate to the owner the progress he is making and the relative progress of various divisions of his business. Salaries, rent, interest, discount, purchases and commissions are accounts representative of this class.

Specific or financial accounts, as the name implies, are the accounts which represent the capital of the business; i.e., property of all kinds, such as land, buildings, machinery and cash.

8. *Profit-and-loss accounts.*—In every business the income and expense accounts are usually carried for a year. At the end of that time they are closed out by the transfer of their balances to the proprietor's account. This is done because, in the end, all business is transacted for the benefit of the proprietor. The

income accounts represent his income while the expense accounts represent the cost of his income and the excess of one over the other represents the increase or decrease of the proprietor's capital. This transfer is made yearly because the business man has become accustomed to measure his progress on a yearly basis.

However, it will frequently happen that transactions will occur in one year, the effects of which will not all be felt until a subsequent year. Unexpected losses, guarantees or sureties which must be made good, expenses not paid for and not charged during the year in which they occurred, will come up for settlement in the succeeding year. Items of this nature, it will be noted, do not in any way pertain to the operations of the current year. But if the economic accounts are to indicate the progress being made in that year, their condition must not be disturbed by the transactions of a previous year, consequently separate accounts are set up to record transactions of this nature.

9. *Proprietorship accounts.*—There are several forms of business organization and control the most prominent of which are sole ownerships, partnerships and corporations. It is not our purpose here to discuss the legal phases or the advantages and disadvantages of any form. The reader will find a full treatment of these topics in the Modern Business Texts on Accounting Practice and Auditing, Capital and Its Control, and Corporation Finance. We are now inter-

ested in these forms of ownership only in so far as they affect an accounting system. The accounts required to record a sole proprietor's, or partnership, investments are simply personal accounts with each partner or owner. These accounts would show: (1) all investments; (2) credit for share of all profits; (3) withdrawals; (4) charge for any losses.

10. *Accounts peculiar to a corporation.*—In the case of a corporation however, our task is not so simple. There the ownership is not shown by the original investment and subsequent changes, but by the certificates of stock which are outstanding.

Each share of stock is issued at a certain valuation called par value. Thus a corporation organized to carry on a produce business may decide that it will start with a capital of $100,000 par value. It divides the capital into 1000 shares and sells them for $100 each. Each share, therefore, has a par value of $100 tho its subsequent sales value may range from one dollar to many hundreds of dollars.

The value of the proprietorship is naturally the excess of assets over liabilities. On account of legal requirement, this excess is split into two sections: (1) the par value of outstanding stock; (2) the difference between this and excess of assets. This latter section is termed surplus and constitutes the profits which have been earned but retained in the business instead of being paid out to stock owners. Hence we may find the following accounts in the books of a corporation:

Capital stock which is the par value of stock issued to the first owners of the corporation.

Surplus which is the value of proprietorship in excess of the par value of the stock.

Deficit which is the excess of the par value over the proprietorship.

Dividends which are the accounts thru which profits are distributed to the owners.

11. *Controlling accounts.*—The discussion thus far has been confined to individual accounts only. We now come to an account which is "collective" in its nature. Briefly defined, a controlling account is one which shows the total debits or total credits existing in a group of individual accounts of like nature. Perhaps this definition will become clearer after we observe the development of a controlling account.

Consider the merchant whose business grows until he has thousands of customers. His ledger is crowded with these accounts and when he draws off a test of debits and credits at the end of the month (his trial balance) the great number of accounts cause much labor, and, what is worse, probably many errors. If this work could be sub-divided so that he could test a part of his ledger at one time, the chance of making errors would be less, and the opportunity for detecting them would be greater.

Moreover, the shopkeeper frequently wishes to know the total amount due to him from his customers. Where no record of the total is kept, the customer's accounts must be added together each time this in-

formation is required. Probably the first practice was to keep a separate record of the total of these accounts, revising it at the end of every day. Eventually, however, an account was carried in the ledger showing the total balance in customers' accounts. The individual accounts were then transferred to another ledger in order that they might not become confused with the main accounts of the business. In this way the main or general ledger still expressed an equilibrium of debts and credits because the total of the accounts taken out was carried in the controlling account for those accounts. It still contained accounts with all the activities, but presented some features of them in condensed form.

A trial balance where controlling accounts are used becomes two separate operations: (1) a proof of the ledger by testing the equality of debits and credits inclusive of the balance in the controlling account; and (2) a test of the transferred accounts by proving that their total equals the balance in their controlling account.

12. *Operation of a controlling account.*—The use of a sales book or sales journal such as has been already described lends itself readily to the operation of a separate ledger for accounts receivable and, at the same time, provides an opportunity for keeping a permanent record of the totals of the accounts in the accounts-receivable ledger. For instance, all accounts with customers are transferred from one ledger to a separate ledger known as "customers' ledger" or "sub-

sidiary ledger." In order that the equilibrium of the other ledger (general ledger) may remain undisturbed one account termed "customers' controlling account" is substituted in it which will equal the total of all accounts transferred to the customers' ledger.

The sales book will be totalled at the end of each month and the total sales on account for the month will be charged to the customers' controlling account in the general ledger and credited to the merchandise sales account. At the same time each individual customer will be charged in the customers' ledger with the respective amounts sold to him.

When controlling accounts are used in conjunction with the forms of books which have been discussed thus far, it will be necessary to post individually those items which are not segregated in individual books. As an illustration, payments by customers in settlement of their account must be posted individually from the cash book to the controlling account and to each customer's account. In the next chapter our discussion of "posting media" will take up, among other things, an explanation of group postings to controlling accounts, so that there will remain but a very few postings which must be made individually both to the controlling and to the individual accounts.

13. *Subsidiary ledgers and their control.*—The ledger in which the customers' accounts are kept, is usually termed a subsidiary ledger or the customers' accounts' ledger. It should be borne in mind that the total of the accounts in the subsidiary ledger must

equal the balance of the controlling account in the general ledger. In order that this may always be true, provision must be made for posting to the controlling account whatever postings are made to an individual account. This posting may be made individually or in total as the accounting system permits. Obviously the reverse of this rule is equally important—any postings to the controlling account must be made to one or more of the individual accounts as well.

14. *Applications of controlling accounts.*—The extent to which the use of controlling accounts and subsidiary ledgers may be developed, is unlimited. All assets which are made up of numerous items similar in nature, where the details of each individual item as well as the total amount involved must be known, can be recorded thru the use of the controlling accounts. In the case of a concern which possesses considerable real estate, the total amount may be indicated by one account headed "real estate" in the general ledger. A subsidiary ledger will contain a record of the separate amounts invested in different parcels of land as well as many other details. Similarly departments, branches, classes of liabilities, etc., may all be controlled thru these accounts.

Some business houses prefer to divide their customers by territories. They will set up controlling accounts for each territorial division and will keep the subsidiary accounts for each controlling account separate, in order that they may be checked against their respective controls. The value of this division lies

chiefly in aiding the determination of administrative policies. Territorial division of accounts will also furnish a great deal of information to the manager regarding the profitableness of the business carried on in each geographical section. Any peculiarities of a certain territory will quickly become apparent if accounts are kept by territories. Sales policies may be changed so as to meet local conditions in each territory.

In other cases accounts receivable may be grouped numerically. A number will be assigned to each account and all accounts divided into equal sections. Thus accounts 1 to 1000—1001 to 2000, etc., would each have a separate control. This division makes proof easy and greatly simplifies reference to the accounts. The numbers run consecutively and each account retains the same number all thru the records.

15. *Private ledger.*—One of the most frequent uses of a controlling account is to control a private ledger. In every business there are certain features connected with the personal accounts of the officers, salary accounts, profits, investment, etc., which the management will not wish to disclose to the bookkeeper or his clerks. All such data may be recorded in a private ledger which will be operated by one of the officials of the company. As it is not advisable to operate two main journals and, as all transactions must be recorded first in the journal or its sub-divisions, entries going into any of the accounts carried in the private ledger must originate in the general books of account.

It is customary to have one account termed "private ledger controlling account" to which will be charged or credited all the entries which affect private ledger accounts.

The private books will be a ledger and a journal. At various times, usually at the end of each month, the official operating the private books will record in his private journal all entries found in the private ledger controlling account. He will transfer these to the accounts in his private ledger.

Suppose that there is a credit of $100 cash to the personal account of John Smith, Manager. The entry for this on the general books would be a credit to the private ledger controlling account and a charge to cash. In the private journal this entry would be a credit to John Smith's account. As the private books are operated by double entry some charge must be made to offset this credit. Since the entry came from the general ledger we may set up an account with that ledger and make our charge to it. Thus the "general ledger" account in the private ledger is the complement of the "private ledger" account in the general ledger. If the private ledger controlling account in the general books had a credit balance, the general ledger account in the private books would have a debit balance corresponding in amount and vice versa.

16. *Control of private ledger.*—The means of controlling the accounts in the private ledger differ somewhat from the control exercised over accounts in the customer's ledger previously illustrated. The private

ledger is a complete ledger in which the debits equal the credits. This equilibrium of debits and credits is made possible by the use of the general ledger account, so that to prove the accuracy of the postings to the private ledger, it is first ascertained whether the balance in the general ledger account equals the balance in the private ledger controlling account in the main ledger. Then the equilibrium of the private ledger is tested by proving that the total debits equal the total credits—i.e., by taking a trial balance of the private ledger.

17. *Installation of controlling accounts.*—When it becomes necessary to transfer accounts from the main ledger and to supplement them by one controlling account, it will be done in the form of a journal entry. The following example illustrates the transfer of a series of customer's accounts from a general ledger to a subsidiary ledger:

JOURNAL

191–						
Mar.	1	Customers' Controlling Account	$6,916	88		
		To John Smith			$1,255	60
		Wm. Jones			344	25
		J. Jackson			900	—
		M. Albert			1,545	78
		W. Kleine			1,693	45
		F. Ross			23	68
		J. Doe			10	—
		T. Roberts			145	63
		C. Walters			998	49
		To transfer customers' accounts to subsidiary ledgers.				

In making this transfer the rule must not be violated that no postings should be made to the subsidiary accounts that are not made to the controlling account. Consequently, this entry should be posted in the general ledger as a charge to the controlling account and as a credit to the individual accounts in the general ledger. The individual accounts would be reopened in the subsidiary ledger by posting to each account individually, the amounts which were charged to the controlling account. It should be noted that the credits to the individual account in the ledger in which they were closed out must not be confused with any entries to be made to the individual accounts in the subsidiary ledger.

18. *Advantages of controlling accounts.*—Among the advantages of controlling accounts are the following: (1) they offer a means of obtaining full data at any time regarding the total as well as the details of any particular class of accounts; (2) they save time in proving the accuracy of the general ledger or of the subsidiary ledgers; (3) they afford opportunities for obtaining various forms of classified information, such as territorial distribution of customers; (4) they reduce accounting expenses by permitting the use of cheaper labor on the detail work of posting to the subsidiary accounts; (5) they provide secrecy whenever desired; and (6) they enable the management to control departmental and branch activities and check them up without keeping all the details of their operation at hand.

REVIEW

State the purpose of classification of accounts and the general principle to be followed in such classification.

What are the various kinds of accounts which may be distinguished?

Describe the purpose, the form and the several uses of controlling accounts.

CHAPTER VII

POSTING MEDIA

1. *Definition of posting media.*—Posting media have been previously defined as the books in which a preparatory assignment of debts and credits is made for every business transaction. The journal with its subdivisions is the posting medium in modern accounting systems. Any book, no matter what its form, in which a transaction is expressed as a debit and a credit, and is accompanied by a description of the nature of the transaction itself, is a posting medium. It is good accounting to vary the form of the posting media, provided the form adopted will be the means of saving time. Closely allied with the question regarding posting media is that in regard to the form of ledger to which the posting shall be made. The functions of the ledger and of the posting media are complementary, and the form of the one depends, in part at least, upon the form of the other.

It has already been shown that the use of controlling accounts is made possible by dividing the journal into sections and then posting in total from these sections to the controlling accounts. At the same time, many transactions must be posted individually to the controlling account and to the subsidiary accounts, even when separate cash, sales and purchase

books are used. If controlling accounts are to be operated efficiently, nearly all postings to them must be made in total. Consequently, one is faced with the problem of grouping these transactions within the original book without increasing the number of books used.

2. *Columnar posting media.*—The plan by which transactions may be classified without the use of additional books is that of providing separate columns in the books used, each column representing either charges or credits to a single account. By thus dividing the books into sections, the same result is obtained as if the items of each column were written in a separate book. The total of each column becomes the total debit or credit to a single account from that posting medium for the month.

To refer again to the illustration of a feed store the owner may wish to know the amount of the sales of each commodity. For this purpose, instead of having a general merchandise purchase account and a general merchandise sales account, it is necessary, to keep accounts with purchases and sales—thus: purchases of hay, purchases of oats, sales of hay, and sales of oats.

3. *Specialized purchase book.*—Therefore, the purchase book for such a business might well take the form given below. The first entry in each column of the book illustrated here refers to an imaginary balance brought forward from a supposed preceding page.

PURCHASES
March 191—

DATE	L. F.	ACCOUNT CREDITED		EXPLANATION	AMOUNT CREDITED	OATS PURCHASES	HAY PURCHASES	CORN PURCHASES	BRAN PURCHASES	SUNDRIES
		Bro't. forward			$15,625 —	$2,500 —	$6,660 —	$1,100 —	$1,550 —	$2,815 —
28		J.Austin	21		500 —	500 —				
28		T.Burt	22		1,500 —		1,500 —			
29		R.Conant	23		750 —			750 —		
30		F.Deering	24		450 —				450 —	
30		H.Smith	25	Harness & truck	275 —					275 —
31		W.Jones	26		1,390 —	500 —	640 —	250 —		
					$20,490 —	$3,500 —	$8,800 —	$2,100 —	$2,000 —	$3,090 —

On March 28, the business purchased on credit from J. Austin a certain quantity of oats. The invoices, which are numbered consecutively, give all necessary details regarding this purchase. The transaction is entered in the purchase book; a note is made of the date, the name of the creditor, the invoice number, the amount to be credited to his account and the charge to "purchase of oats." The invoice value of these oats was $500, which, since it is the amount owed to Austin, is entered in the amount-credited column; a credit of that amount to Austin's account is indicated. Since a specialized purchase book is used, with a separate column for each account that is frequently affected, the charge to "purchase of oats" is shown by entering $500 in the column headed "oat purchases."

In a similar way, the transaction with Jones involves the purchase of oats, hay and corn. It is recorded in the purchase book by entering the cost of each commodity in the column recording its purchase.

There are some articles, however, which will be purchased infrequently, such as harnesses, trucks, fixtures and the like. To devote a separate money column to each of these would effect no saving. A sundries column therefore is provided in which to record all purchases of such a nature. The name of each account to be charged will be entered either in the explanation column, next to the name of the creditor, or next to the sundries column. Every transaction indicated in this column will be posted individually to the account affected.

4. *Posting.*—At the end of each month all money columns are footed. Since each transaction involves a debit and a credit of equal amount, the sums of the debits must equal the sums of the credits. Thus, in the case illustrated, there would be a total charge to oats purchases of $3,500; to hay purchases, $8,800; to corn purchases, $2,100; to bran purchases, $2,000; and to sundries, $3,090. This total of purchases would be credited, in one sum, to the creditor's controlling account. The charges to the various purchase accounts, indicated in their respective columns, would be made in total. The charges from the sundries column will have been posted individually to each separate account affected, and therefore need not be posted again.

When the debit postings have been completed by the charges to the various purchase accounts and the one credit has been made to the creditor's controlling account, the equilibrium of the ledger is still unchanged. From the amount-credited column, the individual amounts must be posted to the credit of each creditor —$500 to the credit of J. Austin, and so on down the list. These are simply memorandum postings to the individual subsidiary accounts, which have already been referred to, made so that the subsidiary accounts will agree with their controlling account.

5. *Columnar sales book.*—Special columns are often essential in a sales book, not only as a means of separating the sales of several kinds of accounts, but also as an aid in recording other facts. Thus the vendor frequently prepays the freight on goods sold to a customer and adds this freight on the invoice. The illustration on page 120 shows a sales book in which a column for prepaid freight is used.

Every sale is indicated by an entry of the date, the name of the customer to be charged, any necessary explanation, the bill number, the amount to be charged, and the distribution of this charge. For instance, R. Shortt, bill No. 95, received $100 worth of oats; $390 worth of hay; $50 worth of corn; $55 worth of bran; and prepaid freight to the amount of $67. The total amount of $757 is charged to Shortt, and this amount is distributed over the various sales accounts and the prepaid-freight account.

6. *Prepaid freight.*—The explanation of the credit

SALES

March 191__

DATE	L.F.	ACCOUNT DEBITED	EXPLANATION		AMOUNT DEBITED	PREPAID FREIGHT	OATS SALES	HAY SALES	CORN SALES	BRAN SALES
		Bro't forward			$14,152 —	$395 —	$4,575 —	$3,675 —	$3,825 —	$1,682 —
28	39	C.Larson		91	165 —	15 —	100 —	50 —		
29	✓	Cash sales		92	220 —			95 —		125 —
29	60	P.Peterson		93	231 —	16 —	125 —		90 —	
31	95	J.Schmidt		94	297 —	22 —			150 —	125 —
31	96	R.Shortt		95	657 —	67 —	100 —	390 —	50 —	50 —
					$15,722 —	$515 —	$4,900 —	$4,210 —	$4,115 —	$1,982 —
			Summary			79	80	81	82	83
			Cash	✓	1,720 —					
			On account	69	14,002 —					
					$15,722 —					

to prepaid freight is this: According to the terms of the contract with Shortt, the business is to prepay the freight and add it to the invoice that is sent to him. Having delivered the goods to the transportation company, the business owes that company $67 for freightage. Hence the credit to the prepaid-freight account represents a liability.

This may be paid immediately, or, if the business is on the transportation company's accommodation list, it may be paid at the end of the month. Whenever it is paid, that payment results in a charge to the prepaid-freight account thru the cash book, thus the credit previously made is extinguished and the liabilities of the business are reduced.

7. *Posting from the sales book.*—Before these many charges and credits are posted at the end of the month, each column is footed, as in the illustration. Again, since in each transaction, the sum of the debits equals the sum of the credits, the footings should show the same result. The footing of the amount-debit columns should equal the sum of the footings of all the other columns. When this test has been satisfactorily completed, the footings of each column may be posted to their respective accounts in the ledger.

But the individual amounts in the amount-debit column must be posted to the corresponding accounts named in the account-debit column. If, as is customary, these accounts are kept in a separate ledger with a controlling account, the total of the amount-debited column will have been posted to the controlling account, and the individual amounts must be posted to the individual accounts only.

8. *Cash sales.*—In the discussion of the old-style sales book it was found that the debit phase of cash sales was not recorded except by a charge to cash. If the modern sales book is to record all sales, and if it is nevertheless the charge thru the cash book in the case of cash sales, a separate column must be provided for that purpose. Thus the charges from the sales book are made up of the debits to customers on account, and the debits from those cash sales *which are not posted.* The item of $220 is picked up as a credit to the various sales accounts, while the charge is a charge against "cash" from the cash book. In the

cash book a separate column will show the total cash received from cash sales for the month. The total of the credit column in the cash book should agree with the total of the debit column in the sales book. If the cash sales are few, they may be separated at the end of the month, as indicated in the illustration.

9. *Specialized cash book.*—It has already been suggested that sales of merchandise for cash might advisably be handled by providing on the cash-debit page a special column for cash sales. The following is a form of cash-debit page which may often prove convenient in cases involving discounts for the prompt payment of cash, and the distribution of the accounts between the general and the subsidiary ledgers.

CASH BOOK

Receipts – March 191_

DATE	L.F.	ACCOUNT CREDITED	EXPLANATION	NET CASH	DISCOUNT LOST	CASH SALES	ACCOUNTS RECEIVABLE	SUNDRIES
		Bro't forward		$16,375 50	$442 10	$1,500 —	$13,756 40	$1,561 20
28		Notes payable	6% - 60 day N.N. Bank	3,000 —				3,000 —
28		T.Peterson	On account	226 70	4 30		231 —	
29		W.Johnson	" "	367 50	7 50		375 —	
31		V.Olson	" "	200 —			200 —	
31		Cash sales		220 —		220 —		
				$20,389 70	$453 90	$1,720 —	$14,562 40	$4,561 20

This form shows that on March 28, the proprietor gave his note—presumably interest-bearing, since there is no discount mentioned—and received $3,000 in cash; or else, that he had that sum placed to his credit at the bank. In the net-cash column there is an entry of $3,000, the actual amount of cash received. The notes-payable account is to be credited, but since there is no special column for notes payable, the amount of the credit is entered in the sundries column. From this column it will be posted directly to the notes-payable account in the general ledger, as was previously described in connection with the sales book.

In the next transaction, T. Peterson made a payment on account. He took advantage of the discount by paying his account within ten days, and consequently remitted $231, less $4.30 discount. By paying $226.70 he discharges his entire indebtedness, previously recorded as $231. Since he has paid his account in full, he must be credited with the total amount; therefore this balance of $231 is entered in the accounts-receivable column. But since the business received only $226.70 in actual cash, only that amount is entered in the net-cash column as a debit to "cash."

The amount of the discount allowed is entered in the discount-lost column as a charge to that account. It is apparent, therefore, that the discount-lost column represents a debit account, and that the total credit to the accounts-receivable column is offset by two debits, one to cash and one to discount. It should

be noted that V. Olson did not pay his account in time to take advantage of the discount; his account is therefore credited only with the total of his cash payment.

The amount of cash sales, $220, is entered in the net-cash column as a debit to "cash," and in the cash-sales column as a credit to "cash sales." It has been explained that the actual credit to "sales" goes thru the sales book, and that consequently there is no necessity of repeating the credit thru the cash book. The charge is made to "cash" in this book, and it is offset by the entry in the sales book. Therefore, at the end of the month the credit of the amount in the cash-sales column would not be posted.

10. *Posting the debit page.*—When the time comes to post the cash book debit page, each column is footed and the test is applied to ascertain whether the amount of debits and of credits are equal. The amounts in the accounts-receivable and sundries columns must be posted individually to the accounts named in the accounts-credited column. The sundry items will be posted individually to the general-ledger accounts, and the accounts receivable will be posted to the subsidiary ledger in detail. The totals of each column except the sundry column will be posted to their respective accounts in the general ledger.

In the illustration, we will charge "cash" with $20,389.70, and "discount on sales" with $453.90 and credit "customers' controlling account" with $14,562.40. If each book were summarized in journal

form, the entry would be completed by showing the total of the sundry column and the cash-sales column and checking the amounts, to indicate that they had already been posted.

11. *Cash-credit page.*—The following form will illustrate the credit page of a cash book with columns to provide for accounts that appear frequently.

CASH BOOK
Payments March 191__

DATE	L-F	ACCOUNT	EXPLANATION	NET CASH	DISCOUNT GAINED	ACCOUNTS PAYABLE	FREIGHT	SUNDRIES
		Bro't. forward		$12,433 —	$122 —	$6,865 —	$690 —	$5,000 —
28		American Supply Co.	Invoice No. 60	970 —	30 —	1,000 —		
29		Freight	" " 59	50 —			50 —	
29		Notes payable	Note NN Bank ⅗	5,000 —				5,000 —
29		Interest on bank loans	Interest on above	50 —				50 —
30		H.Jackson	Invoice No. 61	2,910 —	90 —	3,000 —		
31		R.Smith	" " 62	582 —	18 —	600 —		
				$21,995 —	$260 —	$11,465 —	$740 —	$10,050 —

On March 28, payment was made to cover a debt due the American Supply Company, as evidenced by invoice No. 60. This firm had previously been credited with the face of the invoice, to the amount of $1,000, thru the purchase book. The company offered a discount of 3 per cent immediate payment, and the entire indebtedness is can-

celed by the payment of $970 cash. The actual amount of cash paid is entered in the net-cash column as a credit to "cash," and the amount of discount deducted is entered in the discount-gained column as a credit to that account. The full amount of the American Supply Company's claim is entered in the accounts-payable column as a debit to the individual account not only with that company but with the controlling account for "creditor's accounts payable."

On March 29, a freight bill incurred in connection with invoice No. 59 was paid. Since freight bills occur frequently, a "freight" column is provided, as in the sales book. It should be noted, however, that this kind of freight is totally different from that represented in the sales book. The amount of $50 is entered in the net-cash column as a credit to cash, and the freight is charged with the total of the freight column.

This illustration of the use of a column for freight will serve to indicate the advantages resulting from the use of columns for accounts other than controlling accounts. Any account to which frequent debits and credits are made can be handled effectively by the use of columns, and by means of this method one can avoid posting each individual transaction.

Again, in the illustration it appears that on March 29, a maturing interest-bearing bank loan was paid; the total sum was $5,050, of which $5,000 was principal and $50 was interest. The total payment is entered in the net-cash column as a credit to cash; and

"bank loans payable" and "interest on bank loans" are charged in the sundries column. These accounts do not occur frequently enough to warrant providing special columns for them.

12. *Posting the credit page.*—When posting time comes, all the columns are footed and the equilibrium of the credit page is tested, in this case also, by making certain that the total debits equal the total credits. At varying times during the month, the individual amounts are posted in the sundries column to the accounts named in the accounts-debited column.

More frequently, however, the individual amounts are posted in the accounts-payable column to the individual accounts that are found in the subsidiary ledger. The footings of the special columns are posted to the general-ledger accounts named at their respective heads; i.e., $21,995 to the credit of "cash"; $260 to the credit of "discount on purchases"; $740 to the debit of "freight," and $11,465, to the debit of "accounts payable." To the debit of sundry accounts $10,050 was posted during the month and this posting need not be repeated.

13. *Variety of forms possible.*—There is no standard book form which can be applied in every accounting system. The number of columns, the accounts to be covered, and the kinds of information required are some of the elements that will vary with the individual concern. It is not even necessary that special books be made up, since columnarized books with columns ranging from two to twenty-five may be purchased.

These books can be readily adapted to nearly every kind of business.

Moreover, there is no limit, other than the optical, to the number of columns that may be placed in any one book. This optical limit is explained by the fact that a bookkeeper can follow with ease only that line which is short enough to enable him to see it all without moving his eye far down the page. The average bookkeeper, if he has a book with 25 or 30 columns, is quite liable, in any event, to make errors in entering the amounts in the columns. Consequently, it is never advisable to include so many columns on a page that the bookkeeper cannot easily see them all at the same time. Rather than do this, it is better to post the less frequent amounts individually.

14. *Method of recording notes and drafts.*—The use of columnarized books is not confined to the regular accounting records; it may be extended to a memo book as well. In many firms, the books that are commonly known as memo books become books of preparatory entry or subsidiary journals. For example, the method to be pursued in keeping a record of notes or drafts, received or given, will depend very largely upon the number of transactions of this character. Where but few drafts or notes are received or given, it is unnecessary to keep any special record of them except that in the general-ledger account for notes receivable or notes payable.

To illustrate: the receipt of a note would be indi-

cated in the general journal by a charge to the notes receivable account in the general ledger, and a credit both to the controlling account for customers and to the individual account of the customer who gave the note. When no other record is kept, it will be advisable to enter the date of the receipt of the note, the name of the maker and the due date, as well as the rate of interest, in the explanation column in the ledger account. When the note is paid, "cash" will of course be debited, and the notes receivable account will be credited. At the same time the record of the note itself, in the explanation column of the ledger account, will be checked off so that, at any time, all unchecked items in that account will represent the notes unpaid or the notes that the proprietor has in his safe.

15. *Notebooks.*—When the notes are numerous, it will be desirable to have a special record of them; in almost any stationery store a notebook suitable for this purpose can be purchased. The ordinary method is to list the notes, in the order in which they are received, in a book which has columns enough to show the following information, date received, date of instrument, name of payer, name of indorser, where payable, interest, rate, twelve columns, one for each month of the year, the amount, the date of payment and remarks. The columns for the months of the years, above referred to, show the day of the month on which the instrument is to be paid. When the note is paid, the date of payment will be entered in

the column provided for that purpose. At this time also the entire transaction relating to the note will be ruled off in red ink to indicate that it is closed.

This book is, of course, strictly a memorandum book, designed merely to supplement the notes-receivable account in the general ledger by giving a detailed history of each note. Notes payable will be handled in the same manner, except that the record of them will supplement the notes-payable account in the general ledger. In one sense, notes-payable or notes-receivable accounts in the general ledger, when handled in this manner, become controlling accounts.

16. *Notebooks as books of preparatory entry.*—Of course, notebooks as books of preparatory entry are unnecessary unless many transactions are involved. This form of book, however, may be conveniently used, even to record few transactions, provided more columns than those already mentioned be used. Such a book will have columns for the name of the customer's account; a folio or posting columns for a record of the entry in the ledger account with the customer; and a column for interest, which will receive credit for any interest included on the face of the note.

The total of the amount column will be posted to the debit of the notes-receivable account in the general ledger at the end of each month, and the total of the accounts-receivable column will be posted to the credit of the general-ledger controlling account. During the month the accounts of the customers will

be posted individually at frequent intervals, to indicate the credit for the note which they have given. The notes payable, if they are many, will be handled in the same manner.

17. *Payroll book.*—When a business has an extensive payroll that includes accounts with numerous departments and individuals, it will be found advisable to transform the payroll book into a book of preparatory entry and to charge the salaries directly from this book to the expense accounts to which they belong. For instance, the payroll book will show the name of each employe, the amount paid him each week, and the distribution of his salary over the various accounts which should be charged with it.

If a salesman spent half of his time selling oats and half of his time selling wheat, half of his salary would be charged to an account which might be designated "salary of oat salesmen," and the other to "salary of wheat salesmen." The credit to offset these charges represents a liability and must be expressed as such on the books. It is customary to credit an account called "accrued salaries" or "accrued payroll," and when any salaries are paid, either on a weekly or monthly basis, to charge this account thru the cash book; by this method the liability expressed is reduced.

It will frequently happen that the month will end within the middle of a salary period. Of course, the men are entitled to salary for the time that they have put in, and the business must stand the expense in the period in which it was incurred. All salaries for

the month are charged to the expense account. In the early part of the next month, the next cash payment will wipe out this liability. The balance in this account will represent a liability of the amount of the payroll due and not yet paid.

18. *Petty cash book.*—The petty cash book, which we have previously discussed, can be very satisfactorily operated by properly using separate columns in connection with each of the frequently appearing items. There may be either one column for each class of transactions or one for each account affected. For instance, the general expense account will include many small items such as lunches, carfares and minor supplies.

If any good purpose can be served by keeping a separate record of the petty disbursements on account of such items, they may be grouped separately in columns and then posted to the one account in the ledger. All other transactions which occur frequently, and which are represented by accounts in the general ledger, will be columnarized and posted in total. It will probably be necessary to make use of a sundries column in this, as well as in other books, in order to take care of the accounts which occur only infrequently.

19. *Ledger systems.*—The use of special forms of ledgers is closely related to this subject. In a small business it may be that all the bookkeeping can be performed by one person, and all the accounts can be kept in one book. The more complex system has

been discussed, and it has been explained how the ledger, under that system, is separated into the general ledger and the subsidiary ledger containing the individual accounts, which are branches of the various controlling accounts. The general ledger derives its name from the fact that it contains complete data concerning the condition and the operations of the entire business, tho in a summary form.

In contrast, the customers' and the creditors' ledgers, and other subsidiary ledgers, are often referred to as detailed ledgers, because they contain detailed information about a class of accounts. The idea of the detailed ledger, with its controlling account, may be adopted very extensively. In the case of a large business corporation, nearly every account in its general ledger may be a controlling account. The land account may control a land ledger, in which an account will be kept with each tract of land owned. The buildings account may control a building ledger, which will contain an account with each building. The machinery account may control a machinery ledger which will include an account with each class of machines, or perhaps even with each individual machine.

In the case of many railroad companies, the equipment account may control an equipment register, in which there will be a record of each of the hundreds of locomotives and the thousands, or tens of thousands, of freight and passenger cars, showing for each its date of acquisition, cost, wearing-out or depreciation,

rate, cost of repairs and the like. This illustration should help us to understand that account names are but class names, and that the class lines may be broadly or narrowly drawn, according to the particular business.

REVIEW

What is a posting medium? A columnar posting medium?

How can additional columns be used effectively in the purchase book?

Describe the method of posting from such a book.

Review the application of the columnar principle to the sales and cash books, and the processes of posting which are used in such cases.

What determines the extent to which columns may be used in books of account, and to what books can this use be appropriately extended?

How may the notes-receivable and notes-payable books be transformed into books of preparatory entry? Is this desirable?

CHAPTER VIII

VALUATIONS FOR RECORDING PURPOSES

1. *Fundamental principle involved.*—The bookkeeper in operating his accounting system must reduce to financial records the effects and results of various transactions. He must establish the valuations at which these facts will be recorded and base these valuations upon grounds which will make them both reasonable and just. At first thought it may appear that recording a transaction involves simply the charging of an account with the amount of money paid out or the liability incurred. But such a happy condition is not always encountered. For instance, thru shrewd buying a firm may purchase an article which is worth twice its cost to them. At what price should the bookkeeper record this purchase—cost value or actual value?

It is an established principle of accounting that profits cannot be treated as such until they have actually been earned. In the above illustration, there is a possibility that 100 per cent profit would be made on the article purchased. However, until that profit has actually been realized and until it has been converted into a tangible item, such as a right against others or against cash, we are justified in carrying that

purchase only at its cost value. Therefore, the fundamental principle involved in recording the transactions is to record them at their cost value.

2. *Some questions in valuation.*—It has been seen that each business transaction involves the exchange of valuable rights and services and that, for the purpose of making records, the value of the rights or services received are considered just equal to the value of the rights or services given. This equation is expressed in the familiar form of a double entry. The valuation at which the entry shall be made has still to be determined.

In some cases, the determination of value is extremely simple. If merchandise was purchased for $1,000 cash, there would seem to be no question but that the merchandise was to be valued, for the purpose of recording, at $1,000. However, this illustration is extremely simple and involves no question about the valuation to be placed upon the thing given in exchange for the merchandise, because that happens to be either $1,000 of money itself or an order upon a bank for that amount of money. Cash is the beginning and the end of operations in business carried on for profit. Now, when merchandise is sold for $1,500, a complication arises and, if it is sold on 60 days' time, the matter is still further complicated.

For the purposes of this discussion, all valuable rights may be divided into three classes, viz.: (1) cash; (2) instruments with which to obtain future income; (3) promised but uncollected income. There

is, without doubt, no question about the valuation of cash. It is either money or that which can be converted into money without loss, including the ordinary substitutes for money as a medium of exchange.

3. *Sources of future income.*—The second division of rights consist of sources of future income. The instruments with which it is hoped to obtain an income in the future consist of goods purchased and held for sale or of materials from which goods for sale are made. In this division also may be included the labor expended in making or selling the goods, and the fuel, water, machinery, buildings, etc., by means of which the goods are made and exhibited, or which leave an influence on their sale. The total cost of all these items will be the cost of the income which they produce.

One of the main purposes of accounting is to measure income, to find its cost of acquisition and to determine the amount of profits contained in it. But the profit is merely the increase in the fund of cash which tends to result from the complete cycle, starting with cash and ending with cash, and involving the use of all the other production factors mentioned. This cycle is the turnover of the investment and the number of times that it turns over in a year is an indication of the degree of profitableness of an enterprise. In other words it shows how much work money is really doing. Increasing the rate of turnover naturally results in a smaller permanent investment.

The acquisition of material, fuel, water, machinery,

labor, and the use of a leased building is but the first step in this cycle. The conversion, by means of these factors of production, of the raw materials into salable but unsold articles is the next step in the cycle. They still remain unturned funds, and for profit computation purposes, or for recording value at any time, their value is simply the accumulated cost of the component parts which form the goods. Expended labor, consumed material, and other similar items entering into finished goods become a new unit valued at the accumulated cost of the constituents. In effect, this includes cost of the durable instruments of production such as buildings, machinery and others which have been of service in producing or storing the goods.

4. *Sales values.*—If these goods are sold for so much cash, the cash constitutes the income and completes the cycle. It again becomes the controlling consideration in valuation and the sales account is credited at the cash value. When a sale is made the basis of valuation is shifted from the cash cost, or outlay, to cash production or income.

But these goods may be sold on account or for a note. In this case, the condition is not altered, as the income, altho not yet received, is definitely promised and therefore the seller has a legal right to collect the amount of cash in accordance with the terms of the sales contract. In charging the receipt of these rights against the purchasers, a valuation of the amount which is promised is placed on them, namely the cash

production value. Therefore, accounts receivable and notes receivable which represent income promised but not collected, are, for purposes of record, valued at the amount promised.

5. *Valuation of sources of future income.*—Let us return to the subject of the valuation of instruments with which we expect to obtain income in the future. We saw that, at the time of acquisition, they should be valued at their cost to the business. Of what does this cost consist? Perhaps the answer to this question will be more apparent if we analyze a practical illustration.

Suppose a customer buys from A in Chicago, 5,000 gallons of oil at the invoiced price of 5¢ per gallon, the terms being that he is to have 60 days in which to pay, but if he pays within 10 days he will be allowed a discount of 2 per cent. The freight charges of $100 are to be paid by him. What is the cash cost of this oil laid down at his establishment ready for use? As a matter of fact the actual cash cost is $345 and the account which includes oil should be debited at that valuation. Expressed in ordinary double entry form, the customer's record of this transaction would appear as follows:

Oil	$345	
Discount on purchase	5	
To "A"(accounts payable)		$250
Inward freight payable		100

Here the oil account is debited with $345—the invoice value of $250, less the discount of $5 offered,

plus the inward freight charges. A is credited for the full invoice value, since, according to the terms of the contract, the customer is obligated to make payment at the end of 60 days at the latest, and if his credit privilege is exercised, he must pay $250. The inward freight payable account is credited with $100 to indicate the obligation due to the railroad company for the transportation service received. Upon payment of the freight bill, the inward freight payable account would be debited thru the cash book.

6. *Discount on purchases.*—In this illustration, discount on purchases is debited $5 because while an outgoing claim of $250 is recorded, yet according to the terms of the contract, the customer receives a counter right against A by which he may discharge the entire indebtedness by paying $245 within ten days. The balance of $5 would be covered by yielding up the discount right which he holds against A.

Discount, here, is treated as an asset and the account is debited because the discount right is received. It might be termed a contingent asset corresponding to a portion of the liability in A's account which would be decreased by the customer's right against him. If the right is not exercised within ten days, it ceases to be an asset and becomes a loss—i. e., valueless, while the contingency in the liability also expires and becomes an actuality.

This treatment of cash discounts offered on purchases is not the customary one. By using such a method to determine the valuation at which to debit

an account with the thing purchased, the offered cash discount is deducted whether the discount privilege is exercised or not. Many persons will, at first, be inclined to deduct the discount only when it is taken. They cannot see how the question of the cost of the thing purchased is a thing apart from the taking or refusing of the proffered discount.

However, the cost of the thing purchased is an accounting question, while the question of taking or refusing discount is one of management or of financial expediency. If the discount is taken the customer pays only for the thing purchased. If it is not taken, the customer pays for the thing received and also pays interest on the loan made by the vendor when the latter allows him the privilege of retaining for 60 days the money which is due.

In addition, the customer pays the vendor credit insurance; that is, he makes a contribution to help pay for the goods, with interest on their purchase value, purchased from the vendor by some other customer who will fail to pay wholly or in part. In other words, when a dealer sells on credit, he takes a chance of losing a certain part of the amount due him. As he cannot tell which customer will be unable to pay and hence cannot avoid losses of this kind, he must charge so much more to each customer to pay for the cost of the goods sold to him, allow for the vendor's customary profit and create an excess which will be equivalent to his loss on the amounts uncollected.

7. *A practical illustration.*—As an illustration of

this point, suppose a wholesale merchant has a certain lot of goods on which he could make his customary profit if they were sold for $120,000 cash, but, suppose also that he intends to sell the goods on 60 days' time. Three new elements enter here, viz.: (1) the risk of non-collection of a part or of all the funds promised; (2) the tying up of capital for 60 days without considering the risk of non-collection; (3) the maintenance of a credit department with its expense for stationery, postage, preparing statements, collector's commissions and so on.

Let us consider the second point first. Assuming that the collection is absolutely certain and that the credit system entails no added expense could the merchant afford to sell these goods for $120,000 if he allowed his customers 60 days in which to remit? Obviously, he could not. Assuming that he could obtain 5 per cent upon his money without involving any chance of loss, he could invest $120,000 and earn $1,000 in 60 days. Or, viewing the situation from another angle—the merchant sells on 60 days' time and, therefore, he must either have a larger capital with which to carry on the same volume of business or, he must borrow from the bank and pay interest in order to maintain his stock of goods. If he does not borrow from the bank he must purchase on credit and pay a correspondingly higher price for the material because of the discount allowance for cash settlements which he would lose.

In any event, if the merchant had a larger capital,

he would secure a smaller rate of return on it for the same amount of business, or he would pay the bank or his creditors for the privilege of using their money. No matter how he plans, if he is to make his customary profit, the merchant must have at least $1,000 more for his goods if sold on 60 days' time, even without risk, than if he sold for cash. Therefore, his goods must now be sold for at least $121,000 as a time price which will contain an allowance for interest on the investment during the credit period.

8. *Valuing the risk element.*—Let us now introduce the risk element. Suppose these same goods were to be sold to a thousand different customers who, with regard to capital invested, volume of business, managerial ability and amount and character of past patronage, are so situated that the merchant will be unable to collect 1 per cent of the total amount due him. If he knew in advance which ten of these thousand customers would wholly fail to pay or what part of any account would remain unpaid, he would not sell to any person, in excess of his ability to pay, and he would not sell at all to those who would be unable to pay even in part.

But, not knowing these facts in advance and knowing only that enough failures will occur to prevent him from collecting 1 per cent of the total, the merchant, nevertheless, considers it good business policy to sell to each of the thousand customers providing that the price is right. Leaving out of consideration for the present, the expense of a credit and collection

department, we must charge enough so that the 99 per cent which we shall collect amounts to $121,000. That is, we must charge $122,222.22, to be exact, or, we must charge each one of the thousand customers $122.22 for goods which we could sell him on 60 days' time for $121 if there were no risk of loss, and for $120 if the sale were for cash. The first added dollar is for interest on the $120 and $1.22 is a contribution to pay for the goods sold on credit to the defaulters made up by those who pay in full.

If the credit system necessitates a credit department with collection machinery and if the cost of maintaining a credit system amounts to 2 per cent of the value of the goods sold, then, in order to cover this added expense the merchant's price must be subjected to a further increase. By paying out the 2 per cent and sustaining a 1 per cent loss from non-collection, the 97 per cent left for the merchant will still amount to $121,000; that is, he must ask $124,-742.27 for his goods or, $124.74 from each one of the thousand customers.

9. *Summary of discussion on discount.*—Now, while the merchant must charge each customer $124.74 if he sells on 60 days' time, which is $120 for the goods, $1 for interest, $1.22 for credit insurance and $2.52 for the expense of the credit and collection department, he can easily afford to offer each customer the $1 for interest and the $1.22 for credit insurance or $2.22 as a discount if the customer will pay cash. This amounts to 1.78 per cent of the invoice value

and probably the merchant should make it an even 2 per cent in his offer, for if he offers to sell on credit, he must maintain a credit department and collection machinery at considerable expense.

It is evident, then, that the customer who pays cash, pays for his own goods and a share of the credit and collection department expenses caused by the credit system. The customer who does not take the proffered cash discount, not only pays for the goods and for the total surcharge of the credit system, but he also pays for interest on the investment in his own account, besides making a contribution on the goods purchased by the defaulters, including interest on their valuation. If the customer does not take the cash discount, the additional amount which he pays at the maturity of his account is not paid for his own goods at all and, therefore, is not a part of the cost of these goods.

Cash prices are present prices. Credit prices, on the other hand, are future prices and contain allowances for interest and credit insurance. If a person has not sufficient funds of his own to pay cash and take his discounts, he will find it more economical, providing he has sufficient credit at his bank, to borrow funds with which to obtain this discount. In this way he will save not only a part of the payment he otherwise would make to cover interest on the purchase cost, but also his entire contribution to the risk fund. Indeed, the function of commercial banks is precisely that of financing such transactions.

10. *Records of these transactions.*—From the fore-

going illustration, it is evident that of the $124,742.27 charged by the merchant to the customers at the time of the sale, $2,494.85 is offered as a discount for cash at the rate of 2 per cent. The merchant would be justified in making the entry on his books as follows:

Accounts receivable	$124,742.27	
To sales		$122,247.42
Discount on sales		2,494.85

The debit to accounts receivable represents the full contractual right which the merchant has against these customers if they take the time allowed. The credit to discount on sales represents the counter right to the discount offered them. During the ten day period during which the discount offer remains open, this credit may be viewed as a contingent liability, offsetting an equal amount of contingency in the charge recorded against the customers. The credit to the sales account represents the cash value of the goods under a credit system. The fact that the $2,494.85 credited to discount on sales is equivalent to the amount which was previously figured as the expense of the credit and collection department is a mere coincidence. This is due to the fact that it is assumed in one case, that the credit and collection expense equal 2 per cent of the invoice value, and, in the other that 2 per cent is chosen as the discount allowance instead of the awkward 1.78 per cent which is, theoretically, the correct amount.

This method of recording purchases of such a nature is not yet accepted as the standard practice by

accountants. We can only hope that as time goes on, the business men will come to realize the inaccuracy of their present method of recording credit sales or purchases.

11. *The common method.*—As opposed to this theoretically correct method of recording discounts on sales or purchases we find that the average business man puts them on his books only after they have been taken. In recording purchases from others no accounting record is made of the proffered discount. When the bill is paid and discount taken, discount-gained account is credited thru the cash book. This account becomes a credit account which is interpreted as a source of income, instead of as a reduction in the cost of the goods themselves.

In the case of sales, the common method is to credit the sales account with the invoiced value of the goods and to make no entry representing the discount offered the customer. If the customer takes this discount, "discount lost" is debited thru the cash book as already described, and this account shows a debit balance which is interpreted as loss. It may be asked that if discounts are actual losses why should they be offered? The theory on which they are recorded as an expense is: first, to show the reduction in sales due to discounts which are taken; secondly, to show the results of that phase of our financial transactions, and thirdly, because they are an investment designed to reduce the total loss from bad debts.

12. *Trade Discounts.*—In certain lines of business, particularly in the iron trade, the selling prices are fixed under what is known as the discount method. All articles of iron-ware have a standard list price, and sales are made on the basis of a certain percentage of discount from the list price. This percentage of discount is known as trade discount. Thus, the list price being always the same, the difference between the prices paid by a jobber and a retailer is expressed by a difference in the trade discounts. The jobber selling to a retailer will quote a price less a trade discount. The trade discount which the jobber gives being less than that which he was allowed, his profits are represented by the difference.

The advantage of using this method of quoting prices is evident when the expense of getting out a catalog is considered. Since list prices of iron-ware never change, catalogs describing these articles can be printed in quantities. Changes in the price and fluctuations of the market are effected thru increasing or decreasing the trade discounts. If this practice were not adopted it would be necessary for the manufacturer and trader to get out new catalogs every time the prices were changed or else make numerous adjustments in the printed prices in their catalogs.

Another reason for adjusting to market conditions by means of trade discounts, rather than changes in the prices themselves, is to avoid the appearance of raising prices when market conditions improve again.

13. *Advantage of discount quotations.*—It is evident that the seller in securing orders from customers will endeavor to allow as little trade discount as possible, while the buyers, on their part try to get as large a trade discount as may be secured under the circumstances. The measure of the trade discounts given and allowed is perhaps an index of the ability of the sales manager to secure the best price for his goods on the one hand and on the other, an indication of the skill of the purchasing agent to obtain the highest trade discounts.

By the use of trade discounts it is easy to record a slight fluctuation in the market price by adding or deducting an additional percentage to the trade discount, then making it cumulative; that is to say, adding one discount to another, or deducting one discount from several cumulative discounts already offered. When it is necessary to make discount calculations it is better to prepare a series of tables, showing the products to be used for each of the different rates, and in this way save time in computing the various items.

14. *Valuation of equipment.*—The theory which has been expressed that the valuation at which a purchased article is to be recorded is its cash cost laid down for use in a place of business, is applied by accountants to the valuation of assets purchased as an aid in the carrying on of the business. Suppose a manufacturer purchases a boiler for $3,000 and pays $500 to have it transported to his factory. It is evident that the

boiler, at its place of manufacture is worth little or nothing to him as an aid to the operation of his business. After he has paid $500 to have it transported to his factory it is still of little value to him until it is set up and in condition to generate steam.

Now to go one step farther, let us imagine that the manufacturer pays $100 for cement and $400 for labor in excavating and similar work, in order to build a concrete foundation on which to place the boiler. It follows then that he should record this boiler as costing $4,000 tho its invoice price was only $3,000, because $4,000 has been the necessary out-lay to obtain the service which the boiler will render.

15. *Valuation of liabilities.*—No particular question arises in connection with the recording of liabilities. They are fixed quantities owing to others and the full liability must be expressed. Where, however, cash discounts are treated as in Chapter VII the liabilities for goods purchased must be treated accordingly.

REVIEW

What is the fundamental rule for valuations for recording purposes?

What elements determined the difference between cash and credit prices?

Is a cash discount on purchases when taken to be regarded as income or as a deduction from the value of the goods? How will the accounting be determined by the decision? What is the usual practice?

Apply analogous methods to discounts offered on sales.

Is anything gained by the special treatment of trade discounts or quantity discounts in the accounts?

CHAPTER IX

TRIAL BALANCE

1. *A proof of accuracy becomes necessary.*—No matter what kind of bookkeeping system is used, and no matter how highly developed the system may be, it is impossible for the bookkeeper to perform his duties, day after day, without making errors. His work is both exacting and monotonous, and it is not surprising that his mind becomes dull at times from the detailed scrutiny of masses of figures. It is true that there are many different kinds of accounting systems devised that have special accuracy as their chief end, but no system, however nearly perfect, is a guarantee against error on the part of the bookkeeper. The details of some of these more or less elaborate systems will be taken up in Chapter XVII.

Let us consider, for a moment, the errors which may occur in the course of an ordinary day's work. We will suppose that a transaction takes place and that the bookkeeper records it correctly in his journal, expressing an equality of debits and credits; he then posts these debits and credits to the proper accounts. Nevertheless he may make an incorrect record by posting an amount incorrectly; by omitting to post a debit or a credit; by posting an item twice; or by failing to total a book of original entry correctly.

2. *Former method of testing ledger postings.*—The old-time test of the accuracy of ledger postings, which was used for many decades after double-entry bookkeeping came into use among the Venetian merchants of the 16th century, was a detailed comparison of the debit postings with the corresponding credit postings. When a posting was made to an account that was to be debited, the name of the opposing account—in other words, the account to be credited with the same amount—was written in the explanation column. Likewise, in posting to the account to be credited, the name of the corresponding debited account was also entered in the explanation column in the former account. This method enabled the reviewer to ascertain by a detailed comparison whether for each debit a corresponding credit was posted, and vice versa.

3. *Modern method—the trial balance.*—This comparison was a very laborious process and was long ago superseded by a much more rapid test known as the trial balance. For locating certain errors, this test, as will appear later, is not so effective as was the former detailed method. But if the test by trial balance proves unsuccessful the older method must be resorted to.

A trial balance is an abstract of the debit and credit footings of all the accounts whose footings are not equal, or of their debit or credit balances. Its purpose is to ascertain whether the ledger is in equilibrium, i.e., whether the sum of all the debits equals the sum of all the credits.

Its purpose and value may perhaps be better appreciated if its developments and the theory on which it is based are briefly reviewed. It has been shown that each business transaction consists of an exchange of valuable rights or valuable services, and that so far as the records are concerned, the values of the rights or services given are equivalent to the values of the rights or services received.

This relationship, led to the formulation of the fundamental principle of double entry bookkeeping, namely: The sum of the debits equals the sum of the credits. If there is an equality of debits and credits in each individual transaction and operation, then there must also be an equality of debits and credits in all the transactions of any business.

It follows, therefore, that in any complete ledger —the general ledger, for example—if all the debits and credits were correctly assigned in the posting media and correctly posted to their respective accounts in the ledger, the sum of all the debits entered in that ledger would be just the equal of the sum of all the credits; in other words, the ledger would be in equilibrium.

This fact is the basis of the all-important test of the accuracy of the bookkeeping records; it is of very special value because, knowing that these two sums should balance, the bookkeeper can test directly the accuracy of the postings for the equality of the debits and credits as assigned in the posting media. If, when the test is made, it is found that the sum of all

the debits in the ledger is not exactly equal to the sum of all the credits, then it is certain that there is at least one error somewhere.

The mistake may have been made in the process of recording the assignments of debits and credits in one or more of the posting media; or it may have occurred in the process of posting, or in the process of making the test itself. If, before posting, the equality of the debits and credits has been proved in our posting media, one possible source of error has been eliminated; it is then clear that the error has been committed either in the posting or in taking off the trial balance.

4. *Use of the trial balance.*—The trial balance is usually taken monthly, for two reasons: (1) if an error has been committed, it is easier to check over a month's business than to check over that of a longer period. Since statements of account are rendered to customers monthly, trial balances were originally made at the same interval, in order that they might be used to prove the accuracy of the customers' accounts. (2) The trial balance, by being made up monthly, becomes a preliminary to the monthly statement, as well as a check on the accuracy of the preparation of that statement. Since a trial balance presents a detailed record of every account and, as such a record, shows the status of the business, it furnishes a very satisfactory means from which to prepare a statement of the firm's financial condition whenever

that may be necessary. These statements, also, as will be explained later, are often prepared monthly.

5. *Forms of trial balance.*—There are two forms of trial balance: (1) a trial balance of footings, (2) a trial balance of balances.

A trial balance of footings consists of an abstract of the debit and credit footings of all accounts in the ledger, or at least of all accounts whose individual debit and credit footings are not equal. The debit footings are placed in one column and the credit footings in another. For example, the following trial balance is a list of footings of every account that does not "balance," i.e., does not have equal footings.

	Dr.	Cr.
Cash	$16,842 95	$13,649 50
Land	25,000 —	
Buildings	10,500 —	
Teams and wagons	6,350 —	254 —
Furniture and equipment	3,450 —	169 —
Accounts receivable	36,468 50	19,988 95
Notes receivable	10,540 —	6,490 —
Sales of merchandise	3,480 —	100,580 —
Purchases of merchandise	29,000 —	1,500 —
Selling expenses	3,000 —	
Salesmen's salaries	10,000 —	
General expenses	4,500 —	500 —
Office salaries	4,650 —	250 —
Light, heat and power	1,300 —	
Trucking and cartage, extra	3,400 —	
Outward freight	5,600 —	
Proprietor's withdrawals	5,000 —	
Proprietor's capital		35,700 —
	$179,081 45	$179,081 45

If one desires to know whether a particular account has a debit or a credit balance, he must subtract the smaller footing from the larger. The sole value of such a trial balance lies in the fact that it is the means of testing the equilibrium of the ledger. It requires the least possible number of arithmetical operations, and that means that the danger of committing errors in this process is greatly reduced.

A trial balance of balances consists of an abstract of the balances of all accounts found open in the ledger. An account will be footed and the balance, either debit or credit, will be ascertained. This balance will be entered in its proper column in the trial balance opposite the name of its account. When, on the one hand, the total debit postings to an account exceeds the total credit postings, that account is said to have a debit balance; on the other hand, when the aggregate credits to an account exceed the aggregate debits, the account is said to have a credit balance.

The process of taking a trial balance of balances involves not only the footing of the two sides of each account, but also, the subtraction of the smaller from the larger footing and, moreover, it must be determined whether the balance of any given account is a debit or a credit. The successful completion of these processes requires the most careful application. The trial balance of balances has the advantage of furnishing a convenient source for subsequent reference, since the balances, once computed, are always available.

6. *Trial balance an aid to the preparation of financial statements.*—In most modern business houses it is customary to prepare monthly statements of the financial condition. Each month a statement of the operations of that month, as well as a statement of the financial condition at the end of the month, is prepared. Obviously, if more than one month has passed by, the trial balance of balances will show for each account the accumulation of the entries of two or more months. Because of this fact, accountants have been compelled to devise a means of obtaining a separate record of the month's transactions, in order that statements for the individual month may be prepared.

Trial Balance

----------Company

March 31, 191__

	MONTHLY BALANCES		PERIOD BALANCES	
	DR.	CR.	DR.	CR.
Cash		$5,689.40	$3,193.45	
Land	$5,000.—		25,000.—	
Buildings			10,500.—	
Teams and wagons		254.—	6,096.—	
Furniture and equipment			3,281.—	
Accounts receivable	2,650.—		16,479.55	
Notes receivable	2,000.—		4,050.—	
Sales of merchandise		10,589.60		$97,100.—
Purchases of merchandise	2,968.—		27,500.—	
Selling expenses	850.—		3,000.—	
Salesmen's salaries	950.—		10,000.—	
General expenses	765.—		4,000.—	
Office salaries	350.—		4,400.—	
Light, heat and power	100.—		1,300.—	
Trucking and cartage, extra	300.—		3,400.—	
Outward freight	600.—		5,600.—	
Proprietor's withdrawals			5,000.—	
Proprietor's capital				35,700.—
	$16,533.—	$16,533.—	$132,800.—	$132,800.—

7. *Trial-balance book.*—It is advisable to enter these trial balances monthly in a book prepared for that purpose. This book is known as a trial balance book. Each page has a double column for every month of the year, one column for the debits and one for the credits, covering the entire year. Since the columnar sheets are cut short, the name of the account need be entered only once. Thereafter the balance can be written at the end of each month in successive columns. As new accounts are added to the records, they must of course be added in the trial-balance book.

This record is especially important for the following reasons: (1) it furnishes a permanent record of the checking which the bookkeeper does of his own work; (2) it affords a permanent record of the changes in each account, and serves as a source of ready reference in case the condition of a particular account has to be quickly ascertained at any time; (3) it contains information that is of considerable value from the standpoint of administration.

8. *Order of the accounts.*—There is no standard rule by which to determine the order of accounts in a trial balance. Probably the most convenient is that in which the accounts are transferred to the monthly financial statements. In any event, the order in the trial balance should be the same order as that of the accounts in the ledger. The accounts in the ledger must therefore be arranged in the order in which they will finally appear in the financial statements. Con-

venience in the matter of transferring the information from the ledger to the trial balance, and from the trial balance to the financial statements, requires a uniform arrangement of items.

9. *Incompleteness of the trial balance.*—It has been shown that, in the development of bookkeeping, accounts with all the classes of assets and liabilities were introduced, and later, accounts representing sources of business income and causes of business expense. It naturally follows that when books are kept by double entry, the accounts should, theoretically, contain all, or at least a large proportion of the data necessary in the preparation of the financial statements.

In practice, however, it will be found that the accounts, as they appear on the ledger at any given time, do not contain all this information. This is because so many changes are constantly occurring in every account that it would be impractical to make a complete adjustment of the accounts each day.

10. *Two bases for operation.*—There are two practical accounting systems. According to the first, which is known as the "receipts and expenditures" system, transactions may be recorded either when they originate or when they end in a cash movement or in a definite and complete right against others for cash, and when they record the receipt or disbursement of some tangible asset. In other words, at the end of any particular month, only such transactions as have been completed are entered in the records.

The second method of operation, which is called the

"accrual" system, involves taking into the month's record all transactions that have occurred during the month, whether or not they begin or end in cash or its equivalent, and whether they are finished or unfinished. It is evident that this system is the more desirable, since each month's business should be burdened with all the costs that have been incurred in obtaining that business.

Thus, if during a given month goods were sold for $100,000, it is very likely that not all the expenses of these sales would be recorded on the books by the end of the month. Salaries, commissions and other similar expenses, may have been paid up to within a few days of the end of the month, but the men were working these last few days and turned in receipts which were recorded under sales for the month in which they were received. If against each month's business is to be set all the expense involved in obtaining that business, a record must be made (1) of all the expenses, even tho they have not been paid, and (2) of all the liabilities of the firm for work which has been done, but for which payment has not yet been made.

Of course, it is evident that the latter mentioned system is the one on which the books should be operated and it is the intention of the average bookkeeper and of the average executive to make his cash transactions independent of accounting records of income and expense. He will record the expenses and the liabilities as soon as a bill for a part of the work that has been done for him is presented. He will record

each asset received at the time he receives it, and will express the offsetting credit by means of a liability account indicating his debt for what has been received.

The receipts and expenditures system possesses the decided advantage of simplicity. It requires merely the recording of the receipt and the payment of cash or its equivalent. This method is usually modified so as to include also the recording of the receipt or out-go of other assets, such as rights and services, when any of these are evidenced by something tangible—a bill, a contract or the like.

11. *Special features of the accrual system.*—If each month is to be burdened with its share of the expenses, and is to be credited with all the revenue produced in it the business must be reviewed carefully at the end of the month and certain adjustments must be made in order that the incompleted transactions may be recorded. These incompleted transactions, affecting the month's condition, when itemized, may be divided into two classes: (1) benefits received but not recorded, and (2) benefits rendered but not recorded.

A record must be made in the books, then, of all assets received and of all expenses incurred during the month, and the liability must be expressed by means of a credit to "accounts payable," even if the bills themselves have not yet been received. If a purchase book is being operated when these bills come in, the expense accounts would naturally be charged and the vendor would be credited. But if these entries are

placed on the books prior to the receipt of the bill, they must be recorded thru our journal. Most frequently this indeterminate liability is expressed by a credit to a special account known as "unpresented bills," "reserve for unpresented bills," or "reserve for future liabilities."

It is probably most satisfactory to express the credit in this form, since the entry itself should be reversed; that is, the expense or asset account should be credited, and the liability account should be charged, at the beginning of the next month. Then, when the bills actually come in they can be recorded in the purchase book, and there will be a complete record of all the bills, as well as a temporary record of all the expenses, of the month in which these expenses occur. As the expense or asset account is credited with the amount which was previously charged to it, when the second charge is made to that account from the purchase book, the condition of the account in the month in which the charge was received is not affected. The reversal of the journal entry offsets the charge that comes from the purchase book.

12. *An entry required for every sale.*—It is also important to send each customer a bill for every purchase that he makes. If any sale is incomplete, the fact must be recorded. For instance, if a contractor is engaged on a job that extends over several months, at the end of each month he will have incurred numerous expenses. If his contract calls for payment upon

the completion of the job, his books will always show a big item of outgo, and little or no income until the job is completed and he is entitled to bill his customers. This difficulty can be overcome by means of either one of two methods. (1) If the contract can be split up into monthly sections, the contractor can charge on his books each month the section that has been completed. He would then be setting against the costs of that period the income accruing to him for the month. (2) If for any reason this is inadvisable, however, and he cannot be certain in regard to his profit or loss until the job is completed, the better method is for him to carry as an asset the expenses which have been incurred on the incompleted job. Then, when the job is finished he can set his total income against his total expense, and can readily determine the amount of his profit or loss.

13. *Closing out the books.*—In closing out the subsidiary journals—such as the cash book, the purchase book, sales book, petty-cash book—it is unnecessary to make a journal entry either in the main journal or in the subsidiary journal, expressing the various debits and credits from this book in customary journal form. The bookkeeper need only remember that in the purchase book, for example, the total of the amounts-credited column is a credit to the creditor's controlling account, and the total of each of the amounts-debited columns is a debit to the account named at the head of the column. It must be remembered also that all items in the sundries column have already been posted

individually, and therefore do not need to be posted again in total.

The postings from these books are made at the end of the month, except, as already indicated, that the sundries columns may be posted more frequently and the credits to the subsidiary personal accounts, may be made daily, or at least very frequently. In posting, the bookkeeper will place below the total column the folio page of the ledger account to which he transfers the amount that he posts. This entry will indicate that the posting has been made. After all the posting for the month has been done, the subsidiary journal should be ruled off, and a new page for the new month should be started. The reader will find in the illustrations given on page 112, Chapter VI, the method of closing and entering posting-checks in a subsidiary journal.

14. *Routine of preparing a trial balance.*—It is advisable at this stage to give a condensed summary of the various operations involved in taking a trial balance. (1) It is necessary to make certain that all transactions for the month have been recorded in the books of original entry. (2) Such books as are to be posted in total must be footed and closed out. (3) The equilibrium of the books of original entry should be tested to determine whether in each book the debits equal the credits. It is especially important to apply this test to those books that are posted in total. It is not necessary to foot the journal when every item is posted individually. It is only necessary

to be sure that every entry expresses an equality of debits and credits. (4) All postings must be made for the month.

After all postings have been made, the total of each account must be found; and the balance in each account and the excess of debits or credits made to each account for the month must be compiled in the trial balance. Then the trial balance must be footed. In their final form, the total of the debits and the total of the credits for the month should equal each other, just as the total of the debit balances should equal the total of the credit balances.

15. *Proving the subsidiary books.*—While the trial balance, as it is generally used, simply serves to prove the debits and credits in the general ledger, this kind of proof is valuable and should be applied also to the subsidiary ledgers. It is evident that when the ledgers are controlled by an account in the main ledger, the subsidiary books themselves will not be in a state of balance. Nevertheless, an abstract of the debits and credits must be made and it must be ascertained whether or not the excess of total debits over total credits, or the excess of total credits over total debits, is equal to the balance in the controlling account in the general ledger.

16. *Other uses of a trial balance.*—It will have been noticed that the final trial balance contains a complete summary of the accounts in the ledger. Transactions for the month and the progress for the year to date are shown. The relation of the trial balance to

the business or financial statements is such that one does not need to refer to the ledger in order to be able to tell the results of operations, or the condition of the finances, provided, of course, such extraneous items as inventories, etc., are known.

Indeed it will be very difficult to prepare financial statements directly from the ledger. Entirely aside from the question of the time which would be required to do this, it would be practically impossible to avoid errors were this method adopted. The trial balance, containing, as it does, an abstract of all the accounts, is the foundation for the statements. Therefore if it is free from errors, even tho the books of account may be destroyed, it will contain information necessary to the conduct of the business.

REVIEW

What method of proving the account preceded the trial balance?

Describe the trial balance and the theory upon which it is constructed.

What different forms does the trial balance assume and what is the merit of each?

How does the trial balance aid in making financial statements?

Distinguish between the receipts and expenditures and accrual bases for the trial balance.

Review the operations in closing out the books.

CHAPTER X

RELATION OF THE ECONOMIC ACCOUNTS TO THE FINANCIAL STATEMENTS

1. *Financial statement.*—In Chapter I we discussed the five main purposes for which an accounting system is constructed. These purposes are attained thru two related media: (1) the permanent records of transactions contained in the accounts and (2) the abstracts which classify, record and present this information for administrative guidance. Our interest now lies in the latter phase of our subject.

For administrative purposes, accounting information is presented in regular statements or reports, which are prepared from the accounts in classified and summarized form. By the use of statements we are able to examine different phases of our business separately and thus avoid the confusion which results when a mass of detail from many departments is studied. This summarized information enables us (1) to observe the main tendencies of our business and (2) to examine separately the causes and effects of these tendencies.

The two main financial statements which are presented for practically every business are the balance sheet and the income statement or economic summary.

The balance sheet comprises a list of assets and liabilities together with the amount of proprietorship. It is a statement of things possessed showing the distribution of interest in these between the business creditors and the business owners. It sets forth the financial condition of the business at any given moment. An income statement or economic summary is a list of all the accounts which represent sources of income and costs of this income or "expenses." The expenses are set against the income and the excess of income over expenses constitutes the net profit of the business for the period of time covered. The economic summary then is a panoramic view of the progress of the business for whatever period of time it may be prepared.

This economic summary may be sub-divided, so that it shows the income and costs of individual departments of the business or individual processes of operation. Thus it is possible to obtain a clearer view of the progress of each operation or of each division undisturbed by the conditions existing in other departments or other operations.

2. *Monthly and yearly statement.*—These statements are customarily prepared at the end of each month showing the progress for that month. Many business houses, however, still adhere to the practice of preparing statements only once a year when the economic accounts are closed out and transferred to the proprietorship account. The illustration which will be given in this and subsequent chapters will

first cover, the preparation of yearly financial statements.

Monthly statements present no problem which will not be considered in the discussion of yearly statements. It is only necessary that the trial balance be prepared in the form mentioned on page 157 and that the month's progress be recorded in the economic summary by an abstract of the figures showing the month's business. The balance sheet, being a report of the condition of the business at any moment of time, must, of course, take into consideration the accumulated results of the entire year's operations.

3. *Working sheet.*—Before taking up the routine work of preparing the financial statements let us consider, briefly, the nature of the various accounts which appear on our books. We will repeat the trial balance on page 157 and will analyze the various accounts listed there.

While it may ordinarily be satisfactory to transfer the accounts directly from the trial balance to the statements, confusion may, and frequently does result from such practice. A more complete record than the trial balance is available if a working sheet, as on page 170, is used. Here all extraneous items are recorded where they will not be missed and every item must be expressed in either the economic summary or balance sheet columns. After each adjustment and trial balance item has been redistributed over these two columns, the balance sheet and economic summary may be easily prepared.

THE BLANK COMPANY, WORKING SHEET YEAR ENDED DECEMBER 31, 191__

	TRIAL BALANCE		ADJUSTMENTS		ECONOMIC SUMMARY		BALANCE SHEET	
	DR.	CR.			LOSSES	GAINS	DR.	CR.
Cash	$87,500 —						$87,500 —	
Notes receivable	86,000 —						86,000 —	
Notes receivable discounted		$10,000 —						$10,000 —
Accounts receivable	20,000 —						20,000 —	
Raw material, inventory Jany 1,191-	13,500 —		Invent'y 12/31/191—	$16,750 —	$13,500 —	$16,750 —	16,750 —	
Finished goods, inventory Jany 1,191-	19,000 —		Invent'y 12/31/191—	20,300 —	19,000 —	20,300 —	20,300 —	
Supplies, inventory Jany 1,191-	16,000 —		Invent'y 12/31/191—	930 —	16,000 —	930 —	930 —	
Plant and machinery	50,000 —						50,000 —	
Land and buildings	49,600 —						49,600 —	
Furniture and fixtures	7,000 —						7,000 —	
Notes payable		21,000 —						21,000 —
Accounts payable		161,000 —						161,000 —
Mortgage on buildings		15,000 —						15,000 —
Purchases of raw material	200,000 —				200,000 —			
Productive wages	240,000 —		Accrued	3,000 —	243,000 —			3,000 —
Factory light, heat and power	20,000 —		Accrued	1,000 —	21,000 —			1,000 —
Factory supplies purchased	2,450 —				2,450 —			
Superintendence	10,000 —				10,000 —			
Sundry factory expenses	4,200 —				4,200 —			
Taxes on land and buildings	500 —		Accrued	500 —	1,000 —			500 —
Freight inward	900 —				900 —			
Packing material	1,300 —		Invent'y 12/31/191—	150 —	1,300 —	150 —	150 —	
Salesmen's traveling expenses	6,000 —				6,000 —			
Advertising	2,800 —		Prepaid	1,000 —	2,800 —	1,000 —	1,000 —	
Insurance on buildings and machinery	1,200 —		Unexpired	200 —	1,200 —	200 —	200 —	
Commissions	1,500 —		Accrued	3,000 —	4,500 —			3,000 —
Trade discounts gained		4,000 —				4,000 —		
Freight outward	1,600 —				1,600 —			
Office salaries	20,000 —		Accrued	800 —	20,800 —			800 —
Office light and heat	1,000 —				1,000 —			
Stationery	1,200 —				1,200 —			
General expenses	3,000 —				3,000 —			
Merchandise sales		560,000 —				560,000 —		
Allowances on sales	1,500 —				1,500 —			
Insurance on stock and fixtures	1,000 —		Unexpired	100 —	1,000 —	100 —	100 —	
Cash discounts lost	2,500 —				2,500 —			
Cash discounts gained		2,800 —				2,800 —		
Interest on mortgage	375 —		Accrued	375 —	750 —			375 —
Reserve for bad debts		5,400 —	Reserved	4,800 —	4,800 —			10,200 —
Reserve for depreciation on plant and machinery		5,000 —	Reserved	2,250 —	2,250 —			7,250 —
Reserve for depreciation on furniture and fixtures		1,000 —	Reserved	600 —	600 —			1,600 —
Reserve for depreciation on land and buildings		2,000 —	Reserved	952 —	952 —			2,952 —
Proprietor's drawings	2,075 —						2,075 —	
Proprietor's capital		86,500 —						86,500 —
Goods in process, inventory 12/31/191-			Inventory	5,450 —		5,450 —	5,450 —	
Net profit					22,878 —			22,878 —
	$873,700 —	$873,700 —			$611,680 —	$611,680 —	$347,055 —	$347,055

4. *Adjustments.*—As the reader observed in Chapter V, the accounting records at any particular moment do not give a complete record of the actual condition of the business. There are certain extraneous items which must be expressed on the books or in the statements drawn off from the books before a complete record can be obtained. In our discussion of the trial balance Chapter IX we indicated certain preliminaries which had to be observed before the trial balance could be drawn off. These preliminaries were those that could be entered up every month, even tho the accounts themselves were not closed out.

There are other adjustments such as inventories and unconsumed expenses which must be included in the statement tho the actual items do not appear on our books. If statements are prepared yearly, entries will be made in the book, but full adjustments need not be made monthly.

Referring again to our trial balance, on page 157, let us examine the various economic accounts appearing thereon, and decide upon their meaning and their relation to the economic summary in which they will be incorporated.

In the trial balance, purchases of materials and supplies and all inventories at the beginning of the year are transferred to the economic summary column as expenses. Inventories at the end of the year are not yet on the books and so must be placed in the adjustment columns. In order to maintain the equilibrium of the trial balance and to express both

phases of the transactions recorded there, we pick up the debit in our balance sheet, as will be explained later.

5. *Raw material.*—As the trial balance illustrates a manufacturing business, we find a raw material inventory amounting on January 1, to $13,500. The manufacturer has to account for $13,500. His inventory at the end of the year (December 31) shows that he had on hand material costing $16,750. In addition he received trade discounts on his purchases amounting to $4,000.

It is not customary to record these trade discounts on the books at all, since they do not represent a part of the cost of the goods. They are simply a reduction in the price and should be treated as such. In this illustration they have been included in order to bring out the point that, where a manufacturer, buying under contracts, receives quantity discounts, he is entitled to record these discounts on his books. He must have this information available in making future contracts with his creditors. The credit balance of $4,000 is simply a reduction in the cost of the goods.

At the end of the year when statements are prepared, the inventory of material on hand is an asset and a reduction of the cost charged on our books. The inventory of goods on hand at the beginning of the year becomes, immediately after the first of the year, a charge as expenses of that year.

6. *Other inventories.*—This manufacturer had $16,000 worth of supplies on hand at the beginning of the

year, and purchased $2,450 worth more. He had on hand at the end of the year supplies to the value of $930. For the present we will consider the economic phases of these new inventories by entering the inventories in our adjustment column and expressing the credit phase in our economic summary column.

There is another item which enters into the manufacturing cost of our goods, namely, goods in process. At the end of any period of time it is quite probable that a manufacturer will have goods of more or less value, the work on which has not been completed. A certain amount of raw material will have been taken out of stock and put into the process of manufacture.

To this will be added the wages of employes engaged in working up this raw material, and a certain amount of factory supplies, fuel and miscellaneous factory expenses, which are not yet an expense of the business because the manufacturing process is not completed. Neither are they assets in their original form, because they have been taken out of stock and cannot be inventoried as such. To account for these materials and supplies, we carry an inventory account termed "goods in process." At the end of any period the cost value of goods in process becomes a deduction from the charge against manufacturing costs.

In our illustration it is evident that the manufacturer had so few goods in process when his last previous trial balance was taken that he did not inventory these goods. At the present time, it is found that he

has goods in process to the cost of $5,450. This item is to be considered as a deduction from the cost of manufacture.

After all the manufacturing operations are completed, the goods are known as finished goods. Obviously the cost of the goods on hand must be deducted from the total manufacturing costs to determine the cost of the goods sold during the period. In our illustration we find $20,300 in finished goods on hand while at the beginning of the year there was $1,900 of finished goods on hand. We enter the new inventory in our adjustment column and transfer old and new inventories to our economic summary column.

Packing material with its charge of $1,300 for the year's purchases presents no new features. From this charge must be deducted the balance of $150 on hand in order to determine the amount consumed during the year.

7. *Freight inward.*—Freight charges on incoming purchased goods, whether prepaid by the vendor and added to the invoice or paid directly by the purchaser, are properly to be considered as a part of the cost of these goods. On no other basis can there be a proper counting of the cost of raw materials or salable goods on the one hand and of purchased furniture, fixtures and other equipment on the other. Of course where the vendor pays the freight and includes it in his invoice price the problem does not arise.

Nevertheless the frequent practice has been to charge this freight to a separate inward freight ac-

count. This leaves an ambiguity since part of this may be on unconsumed raw materials and part even on equipment. Most will be on raw materials consumed, however. Hence unless we are to make an expensive analysis of the charges to inward freight, the practical procedure is to assign the whole balance of $900 to manufacturing cost.

8. *Manufacturing expenses.* — The process of changing raw material into finished goods involves many costs outside of the cost of material alone. Direct wages, having a balance of $240,000, is the account against which we charge the wages of those employes who are directly engaged in manufacturing. To this we added $3,000—representing accrued, but unpaid wages. This total ($243,000) is directly attributable to certain articles manufactured, hence, it is termed productive or direct wages.

Superintendence, on the other hand, altho it is a factory expense, is spread over the entire work of the labor force. It is seldom that superintendence can be applied directly against any unit or division of the product. Therefore, it is separate, altho it is charged as a part of the manufacturing cost. The other expenses of the factory, such as light, heat and power, factory supplies inclusive of inventory adjustments, and sundry factory expenses, are manufacturing costs and are charged as such in our statement.

Insurance on buildings and machinery, taxes on land and buildings, depreciation of plant and machinery, and depreciation on factory buildings, are

expenses involved in the manufacturing processes, hence their debit balances are also charges against manufacturing costs. The insurance, for instance, is carried to preserve for us the capital invested in our factory. The factory itself was purchased and is owned as a means to production. Any expenses in connection with it are a part of the manufacturing cost.

In the same way, depreciation on plant and machinery, or plant and buildings, is a part of the cost of the service which these assets render us. As they are used as an aid to the process of manufacture the cost of their services is a part of the cost of manufacture.

9. *Interest on mortgage.*—Interest on mortgage is payable on January 1 of the year following the date on which the mortgage was taken out. We find already on the books a charge of $375 which covers interest on the mortgage for one-half year. If this interest were payable semi-annually this sum would be the amount which was paid on July 1. Now against the operations of the year the amount of interest payable for the year which is $750, or $375 more, must be charged. In the same way there is an accrued charge for light, heat and power, etc.

10. *Taxes.*—Taxes arise by virtue of governmental authority rather than thru contract. It is difficult to mention the particular right or service of which they are the cost.

The question arises whether taxes are paid in ad-

vance or whether they accrue during a period, and become payable at the end. Some persons maintain that taxes do not accrue but are payable, in advance. The basis of their argument is as follows:

The taxes that are payable on January 1, altho levied in the preceding calendar year, were imposed for the purpose of obtaining funds with which to meet the government expenses during the ensuing year. Hence, considered as expenses or as deductions from income, they pertain to the current calendar year. Also since the liability exists on January 1, proper and complete accounting records require us to make an entry as of that date to the following effect:

Taxes	$1,000	
To taxes payable		$1,000

The credit records the liability, and the debit records the expense. If this is the correct view, then on June 30, one-half of the $1,000 balance of the tax account may be considered as pertaining to the future. If a one-year right was created on January 1, then one-half of this right still exists as an asset on June 30.

11. *Argument for accruing taxes.*—The view that taxes accrue is supported by the following argument: The person who constructs a business establishment beginning after May, 1916, has no taxes to pay the next January, excepting on his land. He may have had his plant in operation during 1917, but he will have no taxes to pay until January 1, 1918. His plant will be valued for purposes of taxation in May, 1917. The tax levy will be determined in October,

of that year, and the amount will become due January 1, 1918. Half of it may be paid before June 1, and the other half before October 1, 1918.

Since this person had no tax payable in 1917, he may well reason that the tax which will become due January 1, 1918, has been accruing. The fact that its purpose is to finance the government expenses of 1918 rather than of 1917 is of consequence to the government but not to him. If this view is permissible an adjustment is required from month to month, to take the month's quota of accruing tax into account both as an expense and as an accruing debt.

In our illustration it is assumed that taxes accrue and that for the year they will be $1,000. Of course this is merely an estimate and is subject to correction when the actual tax bill is received. However, for the purpose of charging to each year as much of the expense of that year as is possible to estimate, the tax account is charged with enough to bring the total amount up to $1,000.

12. *Prepaid expenses.*—Many costs are incurred in every business which pertain to a period of time. These costs are a part of the cost of the services which are employed in obtaining income. Obviously when these expenses are to cover services to be received in the future, the entire amount is not an immediate expense but should be distributed over the time which it covers.

Such, for example, is the amount entitled "insurance on buildings and machinery." In our trial bal-

ance this account shows a debit balance of $1,200. This was paid on November 1 to cover the ensuing year. This money is the purchase price of a right to indemnity if during the period covered by our contract we should sustain a financial loss thru the partial or total destruction by fire of the goods covered. Originally the insurance account was charged at the cost price. If the financial statements were prepared at the moment of closing the contract the entire amount, since this right to an indemnity is an asset until the contract expires, would be entered as an asset.

The amount of the insurance premium depends not only upon the amount of indemnity promised but also upon the duration of the contract. Therefore, if ten months out of the twelve have elapsed, we may say that one-sixth, or $200 of the premium, still remains unconsumed and will be the cost of future income. The $1,000 representing the cost of the services we have received, is a part of the cost of the income for the year. The charge against present or past income then, is $1,000, and the portion deferred to a charge against future income is $200.

13. *Other prepaid items.*—Insurance on stock and fixtures is handled in the same way as insurance on buildings and machinery. As the stock and fixtures are used not alone for manufacturing purposes, but are an aid to selling and to administration, the insurance charge here is not a manufacturing charge but rather an administrative expense.

14. *Advertising.*—This account might include merely the cost of space and the service by various advertising media, or it might also include all the services of employes in the advertising department, together with the stationery and postage used by that department, display of its equipment, heat, light, etc. In our present illustration the advertising activity is apparently not highly developed; the manufacturer appears simply to insert a few advertisements in trade papers and charges against this account only the invoice cost of the service received. Whether advertising is to be considered as an asset or as an expense, depends on the following considerations:

If the advertisement was inserted several months ago, there is little doubt that the greater part of its service will have been rendered. If the advertisement was but recently inserted, only part of its service will have been rendered; if the advertisement has not yet appeared, altho we have already been charged for it, it is obvious that none of the services have been received and the full amount of that particular bill or bills remains an asset at the time the statements are prepared.

15. *True prepaid advertising.*—One special case which every bookkeeper will meet arises when an advertising outlay is made at the close of a fiscal period for which little or no returns have yet been received. During the last days of December, drygoods merchants, for instance, advertise their January white sales. Obviously the cost of this advertising cam-

paign is largely a part of cost of the sales which will be made in January. Only a small part can be said to promote general publicity, and in this way attract customers to the stores in the closing days of December. Therefore, such an advertising outlay may properly be represented as an asset on December 31.

Some merchants believe that advertisements published, say in December, will not render their full service until after several months have passed. They claim that they are justified in carrying the greater part of such advertising as an asset, even tho the service itself has been fully rendered, since the returns on that service will not be fully realized until a subsequent time. Such cases must be decided upon their merits. The length of time required to make a sale, the character of goods, the class of people likely to become purchasers, must all be considered.

In our illustration we have assumed that the manufacturer expended $1,000 on a campaign, offering special inducements for purchases in the months of January and February of the next year. This $1,000 is undoubtedly an asset to the business at December 31, therefore we have considered our $2,800 charge against advertising as made up of $1,800 of cost of past income, and $1,000 as a cost of future income.

16. *Merchandise sales.*—The trial balance shows a credit of $560,000 to merchandise sales account, representing the invoice value of the sales for the year. The proprietor has allowed $1,500 as deductions from

sales. It is best to record such items separately, so that the proprietor may know how much he is losing, by reason of these allowances.

17. *Selling expenses.*—Every business engaged in trading will have selling expenses. It is customary to group these in one section of the economic summary. The account, "salesmen's traveling expenses" is debited with the cost of salesmen's hotel accommodations, transportation and the like. Obviously this is a part of the cost of income obtained from sales that are effected, or that will be effected. If a part of this cost applies to the future income, we must determine how much.

Could these outlays be separated with reference to filled and unfilled orders, the part pertaining to the one, would be treated as expense, and that pertaining to the other, as an asset. Usually this is not practicable on any but an arbitrary basis, hence such expense is treated entirely as an expense, or entirely as an asset. In the illustration we have treated the whole amount as a selling expense.

18. *Outward freight.*—This account shows a debit of $1,600. Usually freight on goods shipped to customers is paid by them, or if it is paid by the shipper it is added to the customer's bill and included in the charge to his account. Occasionally, however, by reason of special arrangements, a sale may be made f. o. b. destination.

Some business houses sell in this way regularly in order to place all their customers, within a given zone,

on an equal footing. Whenever this custom is followed, the cost of the transportation service received is debited to the outward freight account. The balance in this account, therefore, is to be interpreted either as a cost of delivering or of selling the goods. In either case it becomes a part of the economic summary.

19. *Commissions.*—The commissions account with its balance of $1,500 indicates the amount paid by the manufacturer to his salesmen in commissions on the goods which they have sold. There is also added $3,000 as due to the salesmen on sales which they have made but for which they have not been paid. As these commissions are a part of the expenses of carrying on the business, they should be considered an expense in the year in which they are incurred, consequently we enter a $3,000 charge against commissions.

20. *Office salaries.*—The cost of services received from employes in the office appears as a debit to office salaries. It is an administrative service. The debits themselves may be made on either of two bases, as was previously discussed in connection with direct wages. However if we are to express, first, the full expenses incurred during the year, and secondly, all the liabilities owed at the date of making our statements, we must add to our figures the amount due but unpaid; the charge against office salaries has accordingly been increased by $800, which amount is determined by a reference to the pay-roll record.

21. *Office light and heat.*—The office light and heat

account is debited with the cost of lighting and heating service received. If the heating is furnished by the plant which furnishes heat to the factory, an arbitrary division of these expenses between factory and office is usually made. The basis on which this separation is made forms a part of the subject of cost accounting. If separate heating plants are used, or if meters furnish data on which the separation can be made, this account will include solely the cost of lighting and heating the administration section of our business.

22. *Stationery.*—There is a balance of $1,200 in the stationery account. It is charged at cost with letterheads, billheads and the like. The amount of the inventory of stationery on hand is legitimately an asset of the business and should be treated as such. In the illustration no inventory is carried since it is assumed that the amount on hand was of little value.

23. *General expense.*—The balance of $3,000 represents petty expenses which are so small that they do not require separate recording. Telephone, messenger service, luncheons and the like, make up the usual charge of general expense. Because of the impracticality of analyzing these charges and because most of them are administrative costs, the whole balance has been assigned to general administrative expense.

24. *Cash discounts.*—Cash discount lost, and cash discount gained have been discussed in Chapter VII.

REVIEW

On what are financial statements based?

Why are the ledger records inadequate to form a complete financial statement?

What is the general nature of the adjustments necessary to form financial statements?

Describe in detail the method of making these adjustments thru the use of the working sheet. Consider separately such accounts as raw materials, advertising, taxes, salaries and others.

CHAPTER XI

RELATION OF THE PERSONAL AND PROPERTY ACCOUNTS TO THE FINANCIAL STATEMENTS

1. *Assets.*—The first class of accounts to be considered here are the asset accounts. They may be divided into three main classes, namely: (1) cash and cash items; (2) promised but uncollected income; (3) instruments with which to obtain income in the future.

The first account in the Trial Balance (Chapter IX) is that of cash with a balance of $87,500. A debit balance in this account represents money, checks and bank credits. This debit balance indicates the amount of cash supposed to be on hand. We say "supposed" because it must be verified by a check against the actual balance on hand. Similar remarks apply to all the other accounts. Hence, in our discussion, supposition will always be understood, and verification will be supposed to have been made wherever possible. Assuming this balance to have been found correct, there is an asset of $87,500 which is to be extended to the balance sheet column of our working sheet.

2. *Notes receivable.*—This account includes promissory notes, title to which comes into the possession of our business. A promissory note is a written prom-

ise to pay a definite sum of money at some determinable future time. A draft, or as it is sometimes called, a bill of exchange, is an order drawn by one person called the drawer on a second person called the drawee or payer, requesting him to pay a definite sum of money to a third person called the payee.

A draft or bill of exchange may be drawn payable either on sight, that is payable immediately upon presentation to the drawee or, it may be payable a certain number of days after date or after sight—in other words it may be a time draft. A draft has no value until accepted by the drawee. This acceptance is indicated when the drawee writes his name across the face of it, after which he becomes known as the acceptor.

After the drawee has accepted the draft it becomes known as an acceptance. Consequently, as the act of accepting the bill constitutes the promise of the acceptor to pay the same on a due date, the accepted bill of exchange becomes, for all practical purposes, a promissory note of the acceptor and should be so treated in the accounts.

3. *Notes of officers, employes and stockholders.*—The notes-receivable or notes-payable account should be reserved for notes receivable taken from customers or for notes given to creditors, respectively, in the ordinary course of business. Notes to or from officers, employes or stockholders should be treated separately in the records; first, because to show them as notes taken or given in the ordinary course of trade would

be misleading; and secondly, because of the fact that these instruments are not, as a rule, likely to be paid promptly. This may also be true in the case of notes payable to officers, employes or stockholders for the reason that such notes might be paid at the expense of other creditors.

4. *Notes receivable discounted.*—Most business houses do not retain their notes receivable until they fall due, but discount them at their bank. Of course, they allow the banker a certain discount or interest on the money which the banker gives up prior to the time that the notes become due.

While a firm has received cash, less the discount for the face value of all notes discounted at the bank, the firm's interest in these notes does not entirely cease until the makers pay them when they fall due. Before depositing a note with the banker, it must be indorsed to the bank and, the indorsement makes the indorser liable for the face value of the note in case the maker does not pay it.

In order that this contingent liability may be expressed in the accounts the deposit of the note at the bank is recorded by a charge to cash and a credit to the notes-receivable discounted account. When the time for which the note was drawn has expired, and it has been paid, we charge the notes-receivable discounted account and credit notes receivable, thus taking the entire transaction off our books.

The balance of the notes-receivable discounted account, represents therefore the face value of the notes

receivable which we have passed on to the bank by indorsement, and which have not yet matured, and on which we are contingently liable. The balance of the notes-receivable account does not represent the face value of notes receivable on hand, but the face value two accounts must always be considered together.

5. *Accommodation instruments.*—Another class of notes which are frequently met are termed accommodation notes. They are notes or other negotiable instruments which are given by one person for the accommodation of another. Thus, if John Doe has not established credit in the community and finds himself unable to borrow money upon his own note, he may secure the indorsement thereon of a man of established credit rating. This endorser is said to indorse for accommodation and the instrument is called accommodation paper.

On some occasions, a man financially sound will indorse for the accommodation of a friend and, if the person to whom he has given his indorsement should fail in business, the man who has indorsed and who is financially responsible must pay.

Accommodation notes are potential liabilities of the indorser which must be considered in preparing a statement of financial condition. If they are recorded as a liability the corresponding claim against the drawer must be carried as an asset. It is customary, however, simply to append a foot-note to the balance sheet stating the amount of such potential or contingent liabilities.

6. *Accounts receivable.*—In the trial balance, there is a debit of $20,000 to "accounts receivable." This is a controlling account, the details of which are assumed to be found in a subsidiary ledger. The balance in this account therefore, represents an asset of the amount due from customers, evidenced solely by the charge against them in the books.

7. *Uncollectable accounts.*—In our trial balance, the reader will have noticed an account headed "reserve for bad debts." A reserve is an allowed offset against some account that is probably overstated. This account indicates that in previous years an offset has been allowed to cover probable incollectability of accounts and notes due us.

As there is no reason to doubt the accuracy of these previous estimates, we need only a further provision now for the possible expected loss on the sales which had been made in the last year. These losses are appropriately chargeable to the period in which the sales were made. They are a deduction from the sales of that period rather than a loss to the period in which they occurred. It is better bookkeeping to take the loss on the books in the period to which it belongs rather than in the period in which it comes to our notice. The amount of this loss is of course, indeterminate and we must estimate what part of our income for the year under examination will not be collected.

Two methods of doing this are open: Either (1) we may examine each existing debt and pass judg-

ment upon its collectibility, or (2) we may tabulate the results of previous years and estimate that future loss will continue at the same rate. The latter method is the usual one followed.

The procedure, therefore, will be to ascertain the amount of our accounts and notes receivable outstanding, $106,500—and estimate that, according to past experience, we shall lose 9.5 per cent, in round numbers $10,200. As we have already appropriated $5,400 to cover the amount expected to be lost on accounts, we need appropriate out of the current year's income only $4,800 which will bring the reserve up to the figure required by past experience. This reduction in income is indicated by a charge in the economic summary column.

8. *Expected discounts on uncollected income.*—It is probable that a certain number of customers will take advantage of the discount offer which we will suppose is 2 per cent for cash within ten days. At the time the statements are prepared, if the total amount indicated by the accounts receivable is not to be collected, it may be desirable to provide for the amount which will be lost on account of discount, as well as the amount which will be lost from bad debts.

Obviously no discounts will be taken upon accounts older than the number of days in our discount period. All discounts offered on invoices less than ten days old are rights held by these customers and constitute an offset to the accounts receivable.

9. *Instalment accounts.*—In some cases a manu-

facturer or a trader may sell a customer some miscellaneous items, subject to the usual credit terms, and in his other dealings with the customer, for equipment, allow him to purchase on the instalment plan. Where business of this character is done it would seem better to open two accounts; one for the sales equipment on the instalment plan; the other for the sales of materials sold on the usual terms of credit.

In such a case as this, great care must be taken that the accounts are properly credited with the cash paid in by the customer and that no payments received on account of equipment sold, subject to the lease agreement, should be credited to the regular credit account. The double account will enable the manufacturer or trader to watch very carefully the account of a customer purchasing material or equipment on the instalment plan in order to see that all payments are promptly made as agreed upon.

10. *Sources of future income.*—We come now to the third class of assets, namely, instruments with which to obtain income in the future. These may be subdivided into:

(a) Trading or working assets

(b) Prepaid expenses or deferred charges to operation, and

(c) Durable or fixed assets.

11. *Trading or working assets.*—Trading assets of the merchant or manufacturer consist of the merchandise or finished goods which he holds for sale. Working assets of the manufacturer consist of: (1)

all goods which are in the process of manufacture but which are not yet finished; (2) the raw material from which the manufacturer will make similar goods; (3) the fuel and supplies on hand which he will use in the process of manufacture. The items classed as supplies, would include oils, waste, factory stationery, and cost records, which are used directly in connection with the manufacturing processes.

In principle, inventories should be valued at cost because their cost is an important part of the cost of the income which will eventually result from the sale of the finished goods the profit represented in which income cannot be computed correctly unless this cost is carried over correctly. Business conservatism, however, follows the practice of valuing at the market price if that is permanently lower than this cost.

The reader has noted that, at the end of every year, the inventories of material on hand become assets and a deduction in the charge against purchases. Referring to the adjustment column of the working sheet we find the following inventories:

Raw material	$16,750
Finished goods	20,300
Supplies	930
Packing material	150
Goods in process	5,450

Hence we must treat all these items as assets in our balance sheet, while the respective credits of these adjustments are treated in the income statement or economic summary found in Chapter X.

12. *Prepaid expenses.*—Prepaid and unexpired expenses are treated in much the same manner as inventories. They are assets to be recorded in our balance sheet. We picked up the credit by reducing the expense charge in the economic summary. We now pick these items out of the adjustment column and transfer them to the balance sheet column.

13. *Durable assets.*—Fixed or durable assets, as their name implies, are the assets by means of which the business is transacted. Their value, for statement purposes, consists of that part of their cost which is assigned to the service they are yet to render.

Considering next the fixed asset accounts, we find that the plant and machinery account represents the cost value of the machinery used in the process of manufacture. The value of this machinery is at least its cost value, but that part of its cost that is assignable to *past* service, is properly a manufacturing expense. If any buildings or machinery are torn down, destroyed, or abandoned as useless, the plant and machinery accounts would be credited so that the cost value of these assets on hand is $50,000 for plant and machinery, $49,600 for land and buildings, and $7,000 for furniture and fixtures.

14. *Depreciation.*—After these buildings have been erected, or the machinery installed, or any other operative asset acquired, it is evident that immediately a decrease in the value of these articles begins. They may still be capable of rendering service, but they should not be valued at cost because a part of this

cost is assignable to service they have already rendered. This part is called "depreciation." If we are to determine the true cost of manufacturing we must include the depreciation of our serviceable assets. A technical discussion of the various methods of figuring this wear or depreciation will be deferred to Chapter XVIII and XIX.

Depreciation for the present, may be estimated on a method known as the percentage of declining balance. Let us suppose that experience in our business, or in similar industries, has taught us that our machinery will depreciate at the rate of five per cent per year; consequently, we figure depreciation at the rate of five per cent on a declining balance. In other words, the machinery which cost us $50,000 has already been depreciated $5,000, leaving a new balance of valuation of $45,000. Five per cent of this valuation is $2,250, which represents the depreciation charge for the year under examination.

In the same way buildings are expected to depreciate at the rate of two per cent, and furniture and fixtures at the rate of ten per cent. These depreciation charges are all costs of our income and, hence are charged in the economic summary column and entered as an adjustment as well.

15. *Land.*—Land is ordinarily recorded and carried at a valuation different from that given to the other kinds of assets. The account is debited for the cost of land acquired, and for the cost of any improvements, such as filling-in a water front, grading, and

the like. Obviously, in the case of sales or other forms of disposal, this account will be credited at the cost value—namely at the value at which it was carried.

Like other fixed assets we buy land, not for its own sake but because of the service which it will render. Land, however, cannot be said to depreciate as does other kinds of serviceable assets. Unless the real estate market is fluctuating extremely, we need take no cognizance of changes in the value of land when preparing a profit-and-loss statement. Therefore, it is customary to consider the durability of land as practically infinite, and its service to be a steady non-costing item.

In the illustration in question, we have grouped land and buildings with the idea that the value of the land constituted a very small proportion of the total valuation at which the asset was carried. We are thus being more conservative than is actually required because we are depreciating our land along with the buildings.

16. *Accounts payable.*—Having analyzed all the classes of assets which will customarily be carried on the books of a business, let us now turn our attention to the liabilities.

Accounts payable account is credited with the invoice value of all goods which are bought on open account. Like accounts receivable, it is a controlling account the details of which are presumably found in a subsidiary ledger. The balance of this account amounting to $161,000 represents the amount which

is owed the creditors of the business on open account. This is subject, of course, to the right to take such cash discounts as may be offered.

17. *Notes payable.*—Notes payable are tangible definite evidences of liabilities and must be recorded separately on the books. The balance of $21,000 in this account represents notes given to trade creditors in settlement of open accounts which they held against us.

In order to separate the amounts owing to trade creditors and the amounts owing to banks, it is customary to carry a separate account in which such items will be recorded. They are a different class of liability, usually incurred under different conditions, and if the two are separated a better idea of the financial condition can be obtained.

18. *Real estate mortgage bond payable.*—The manufacturer in the illustration on page 170 has preferred to mortgage his buildings rather than to borrow money from the bank. This method is possibly more desirable because mortgage bonds can be paid at some far distant future, whereas bank loans must be met within a few months at the most. This account simply represents the liability entailed on account of the outstanding mortgage bond.

19. *Reserves.*—The question may have arisen in the reader's mind with reference to the credit that offsets these extraneous debits which have been inserted into the expense accounts. The reserves which have been set aside for expenses expected in

the future, but resulting from the current year's income, are carried to a reserve account. As fast as any of these costs materialize they are charged against the reserve accounts.

Thus, the balance in any account, at any time, represents the amount set over against previous years' income to cover expenses resulting from that income, or to cover losses which will result, because a part of that income will not be collected. For instance, the reserve for depreciation on buildings, plant and machinery is credited to apportion the cost of those perishable assets to the service which they render. Reserve for bad debts is also credited to offset that part of the debts receivable created thru sales which will not be collected.

In our illustration we set aside the following reserves:

For bad debts	$4,800
For depreciation on plant and machinery	2,250
For depreciation on furniture and fixtures	600
For depreciation on land and buildings	952

We have entered these amounts in the adjustment column to indicate that they are outside items not in the trial balance and have already recorded the charge in the economic summary column. As there are accounts in the trial balance containing the amounts previously set aside, we may add the new provisions to the previous ones and place the totals in the balance sheet column in order to express the credits.

20. *Accruals.*—Accruals are items of a slightly different nature, inasmuch as their amount can be more

definitely determined than that for reserves. We know that if one hundred men had worked two days, each at $2 a day, for which they have not been paid, wages amounting to $400 are due them. Hence, we express this debt by an accrued liability, which means that the debt will be payable in the immediate future. Reserves are estimates, while accruals are, as a rule, certainties. Also, accruals will be paid within a short time while reserves may be carried over for many years. As we find no previous accrual accounts in our trial balance we extend all our accruals to the balance sheet column to express the assumed liability which they represent.

21. *Proprietor's account.*—In the final analysis a business is operated for the benefit of its proprietor. All accounts that point out the progress made by the business, and the amount of profit or loss resulting, are but divisions of the proprietor's account, separated to show the progress of different phases of the business. The net excess of the income accounts over the expense and loss accounts is the amount of profit made during the year. This credit goes to the proprietor to be withdrawn by him or to be added to his investment, if he leaves it in the business. Hence, we adjust the proprietor's account by adding to it the net profit made. We determine the amount of this net profit by totaling the debits and credits in our economic summary column and computing their difference.

22. *Proof.*—It is not enough that we list the ac-

counts and determine the net profit. We must be certain that our work has been correct. To this end we extend the net profit to the balance sheet column, as shown by the credit balance in the economic summary column. At the same time we extend the amount of proprietor's withdrawals and his investment at the beginning of the year to the balance sheet column. If our work has been correct the debits and credits of this column should agree.

This will be apparent if one considers that we started out with an equality of debits and credits in our trial balance. We transferred certain accounts having debit or credit balances to the economic summary column and substituted for the ones eliminated one account covering their net credit. The fact that certain outside items were included in our figures does not affect the result as, in every case, we recorded a debit and a credit. Hence, our balance sheet column is in effect a new trial balance in which certain items have been added, and in which only the net balance of many accounts from the old trial balance is retained.

In our illustration we find that the proprietor has withdrawn $2,075 during the year. While this sum is treated as a decrease in the amount of profits credited to him, it should be noted that it is not a decrease in the amount of the profits themselves. The reader will see that the business made a profit of $27,878. Of this the proprietor has withdrawn $2,075, leaving $25,803 to be added to his investment.

As his investment at the beginning of the year was $86,520, he now has a new investment of $112,323.

REVIEW

Why should notes of officers, employers and stockholders be distinguished from "notes receivable"?

What is the purpose of the notes-receivable discounted account?

How is the allowance for uncollectible debts computed?

Distinguish between the various classes of assets.

Trace the method by which various accounts appear in the proper amount in the balance sheet.

State the general method of estimating necessary reserves.

CHAPTER XII

THE INCOME STATEMENT OR ECONOMIC SUMMARY

1. *Purpose of financial statements.*—The working sheet which was discussed in the two preceding chapters reduces the trial balance of the ledger accounts to a set of figures which show, first, the amount of profit made by the business during the year under examination, and secondly, a list of the assets and liabilities, as well as the proprietor's share in these assets. In this chapter, the form and preparation of the income statement or economic summary will be treated.

The purpose of an income statement or economic summary is the classification of the information in such a form that it will be of service as an administrative aid. Every account included in the working sheet has been analyzed and its nature has been discussed. It was found that costs, for example, may be classified as pertaining to manufacturing, selling, administration, or deductions from income. It is proposed to discuss now the various means by which these items may be so classified as to show which branch of the business is most efficient, which most costly, which most profitable, and so on, as well as to show the various activities of each branch and the profit or loss on each.

2. *Evolution of form.*—To this end it will be advisable to consider the various forms of income statement or economic summaries which have been used, as well as those that are used now. The first thing to be considered in developing a form by which to record the economic progress of a business, is the purpose which this form must serve. The possible purposes have already been discussed, but these purposes must be considered in connection with the kind of business, the division of activities which is made, and the kind of information which is desired. For instance, some business houses will wish to examine their sources of income first, and their expenses afterward. Other houses, whose sales are practically fixed, and whose profits result chiefly from the decreases in expenses, will wish to examine first of all the various causes of expense, in order to ascertain whether they are unduly high, and how they compare with the conditions in previous years.

Little attention need be given to form, if only the amount of profit or of loss is to be ascertained. The mere listing of sources of income and causes of expense, with the consequent determination of the excess of the one over the other, will immediately indicate the amount of profit made, or of loss incurred. Indeed the working sheet which we have prepared furnishes this information without further trouble.

It may even be said that if the owner desires to know only the amount of profit or of loss at the end of the year, he does not need to carry all the accounts

that have been described. He need have only one account, called "profit and loss," to which he should charge all expenses or losses, and credit all income. The difference between these will represent his profit or loss, as the case may be, just as truly as the balance of the economic-summary column in the working sheet represents one or the other.

However, as has been said, the functional classification of operating costs is as necessary to efficient operation, as it is to the accurate compilation of cost statistics. It is not enough for the owner to know the amount of profit or loss; he must know the sources of profit and the causes of expense. Moreover, he must classify such items to correspond either to the various departmental divisions of his business, or to the different operating functions. Then, instead of reckoning either total cost and total income, or individual cost and individual income, he can measure the relative efficiency and the relative profitableness of such operations as manufacturing and selling, of such branches as the sales department and the advertising department, or of any branch to which he can assign a definite income and to which he can ascribe its own particular cost. For instance, a dry goods merchant may separate his sales into sales of various kinds of clothing and then allocate to each kind of sales the expenses incurred in producing those sales.

3. *Early methods.*—It is probable that the first purpose of double-entry bookkeeping was to furnish an accurate record, and the second, to afford a means

of ascertaining profits and losses. The bookkeeper probably furnished the owner with an abstract of the profit-and-loss account, or possibly, at first, only with the balance in the profit-and-loss account.

As the number of entries in this account increased, the abstract, or transcript, became bulky and cumbersome and the mass of details obscured the single items or classes of items, so that a reconstruction of the form of the transcript became necessary. It is likely that the owner himself first made this reconstruction, by classifying the charges and credits under the various heads, that suggested themselves to him. Later on he probably required his bookkeeper to make this classification for him, in order that his own time might be saved. Still later, the preparation of regular profit-and-loss statements became an established custom, and the form in which the information was presented became more or less standardized.

4. *Nature of an income statement or economic summary.*—An economic summary may be compared to a cabinet full of compartments in which the information already minutely classified is grouped in larger classes. Various names have been given to this summary, among which are the following: "profit-and-loss statement," "loss-and-gain statement," "trading account," "outlay-and-income statement," "revenue statement," and "manufacturing, trading and profit-and-loss statement." None of these terms is absolutely accurate. The last one, however, "manufacturing, trading and profit-and-loss statement," prob-

ably expresses the true nature of an economic summary for a manufacturing concern. This statement shows, first, the manufacturing cost; secondly, the trading expenses and revenues; and thirdly, the general administrative expenses and the distribution of the net profit or loss.

The term "profit-and-loss" implies that the so-called expenses are losses. While they will result in a loss if they exceed the income, they are not losses in any proper sense of the word; they simply represent a necessary investment that is made with the idea that it will bring a return greater than the investment itself.

From this point of view "outlay and income" would seem to be an appropriate title, for the economic summary since, first, it indicates exactly what some of the accounts in the economic summary express, and secondly, it implies the true time relation between outlay and income—that is, it implies that outlay must be incurred before there can be any income. But included with the outlay accounts will be other accounts, which will represent either deductions from income or actual loss. Because the term, outlay and income, does not in any way refer to these accounts, it is seldom used.

In so far as the account is intended to show, and does show, either profits or losses, we may say that the title, "profit-and-loss account" is justified. It certainly has the sanction of business custom. If, however, one wishes to prepare a highly technical state-

ment and to indicate by the title the exact nature of its contents, the term, "trading and profit-and-loss statement" should be used if one is dealing with a trading concern, or the title "manufacturing, trading and profit-and-loss statement," if one is dealing with a manufacturing concern.

5. *Illustrations of forms.*—The chief cause of the variety of forms used in presenting classified information thru economic summaries, is the difference of opinion among managers, as to how each class of information may best be set forth separately. There is no standard form. One manager may believe that he can best state his business affairs by adopting one arrangement, while another will prefer a different one. The form on page 208 illustrates one kind of statement for a profit-and-loss account.

It shows a simple listing of expenses and income, with such classifications as pertain to the particular business. For example, the first section of the statement includes the sales and the cost of sales. This section indicates the gross profit on sales; if the amount is large, the owner will know that either his purchase costs or his selling expenses are too high.

The next section covers administrative expenses, including the details that make up these expenses. Then come either the profit-and-loss charges, or the credits, which are the various items not directly connected with the main function or functions of the business.

This form of statement is simply made out in ac-

Profit-and-Loss Account, for the period January 1 to August 15, 1908

To inventory (January 1)	$3,765.89		By sales	$96,048.00
Purchases	84,210.00			
	$87,975.89			
Less inventory (August 15)	2,089.48	$85,886.41		
Gross profit		10,161.59		
		$96,048.00		$96,048.00
To general expenses		$4,290.45	By gross profit	$10,161.59
Bookkeeper's salary paid	$525.00			
Bookkeeper's salary due	37.50	562.50		
Ordinary business profit		5,308.64		
		$10,161.59		$10,161.59
To discounts allowed		$315.86	By ordinary business profit	$5,308.64
Net profit		5,867.97	Discounts received	875.19
		$6,183.83		$6,183.83

cordance with the knowledge that to be most valuable, information must be classified and condensed, and yet must be presented in such a form as to indicate where the details of each classification may be ascertained. If profits are low, the cause may be first located in a section of the profit-and-loss statement; then it is necessary to investigate in detail all the accounts in that particular branch.

6. *Manufacturing, trading, and profit-and-loss.*— The principal operations of a manufacturing or mercantile business are:

1. Purchasing raw material or finished salable merchandise.
2. Purchase of fuel and various kinds of supplies, stationery and equipment consumed in the manufacturing process.
3. Transportation of these commodities to the place of manufacture.
4. Receiving and storing the purchased articles, including inspection of quality and condition and the variation of quantity.
5. Processing or manufacturing these materials into finished goods, including the application of labor, and the service of various production aids, such as machinery, buildings, and the like.
6. Advertising, or general publicity—making the goods or services furnished by the business known to the general public.

7. Selling or obtaining orders for goods or services.
8. Deciding upon the credit and the terms to be offered to the customers.
9. Delivering the goods to the customer—that is, furnishing the service.
10. Collecting from customers for goods delivered or services rendered.
11. Financing, or providing funds with which to pay for goods purchased and to meet the labor expenses.
12. Miscellaneous general activities, including the keeping of records.

A manufacturing, trading and profit and loss statement must furnish exact data on the cost that each of these functions involves. It will be noted that on page 212 the statement sets forth, first, the manufacturing cost, secondly, the marketing cost, thirdly, the general administrative cost, and fourthly, the general miscellaneous sources of income or outgo.

7. *Other forms.*—We find in frequent use other forms of statements besides those mentioned above. They are usually forms within forms. In other words, the two forms that have just been described are standard, and any other that may be used is generally simply a variation of one or the other of these two standards. For example, one has the choice of listing the items in such a way that all debits will be placed on the left hand, and all credits on the right,

or of expressing the items in narrative form, beginning with the sales and deducting the various classes of expenses as they are accumulated. The form illustrated on page 208, is of the debit versus the credit type, while that on page 212, is an example of the narrative form.

8. *Arrangement of accounts.*—There is no standard rule for the arrangement of the accounts within the economic summary. The decision, in each case, will depend upon the particular needs of the particular business and the accounts which are to be emphasized. It is, of course, customary to adopt a logical arrangement that will show the process of the disposition of the goods.

For instance, the first step would be to accumulate the costs of the raw material in the order in which those costs were incurred. To these would be added the manufacturing costs, then the marketing expenses, then the general administrative expenses, and finally the miscellaneous expenses in connection with financing the work.

It is sometimes difficult to decide whether a certain acccount represents charges for manufacturing, trading, administration or profit-and-loss. There are many and conflicting arguments regarding the classification that should be made of taxes, depreciation, cash-discount and similar charges.

Some claim that taxes should be charged to administration, or profit-and-loss, because they do not in any way pertain to the operation of the business.

THE BLANK COMPANY

STATEMENT OF INCOME AND PROFIT AND LOSS

FOR THE YEAR ENDED DECEMBER 31, 191___

Sales					$560,000.00
Less allowances					1,500.00
Net sales for year					$558,500.00
Raw material inventory 1/1/191-	$13,500.00				
Raw material purchased	200,000.00	$213,500.00			
Less inventory 12/31/191	$16,750.00				
Trade discounts	4,000.00	20,750.00	$192,750.00		
Productive wages paid		$240,000.00			
Add amount accrued		3,000.00	243,000.00		
Unproductive wages (superintendence)			10,000.00		
Factory light, heat and power, paid		$20,000.00			
Add amount accrued		1,000.00	21,000.00		
Supplies, inventory 1/1/191-	$16,000.00				
Supplies purchased	2,450.00	$18,450.00			
Less inventory 12/31/191-		930.00	17,520.00		
Insurance on buildings and machinery		$1,200.00			
Less unexpired		200.00	1,000.00		
Freight inward			900.00		
Sundry factory expenses			4,200.00		
Taxes on land and buildings			1,000.00		
Depreciation provisions					
On plant and machinery		$2,250.00			
On land and buildings		952.00	3,202.00		
Total			$494,572.00		
Less inventory of goods in process 12/31/191-			5,450.00		
Cost of goods manufactured during year			$489,122.00		
Inventory adjustments					
Inventory finished goods 12/31/191-		$20,300.00			
Inventory finished goods 1/1/191-		19,000.00	1,300.00		
Prime manufacturing cost of goods sold				$487,822.00	
Packing material		$1,300.00			
Less inventory 12/31/191-		150.00	$1,150.00		
Salesmen's traveling expenses			6,000.00		
Advertising		$2,800.00			
Less prepaid portion		1,000.00	1,800.00		
Commissions paid		$1,500.00			
Add amount accrued		3,000.00	4,500.00		
Freight outward			1,600.00		
Total selling expenses				15,050.00	
Selling cost of goods sold					502,872.00
Gross profit on trading					$55,628.00
Office salaries paid			$20,000.00		
Add amount accrued			800.00	$20,800.00	
Office light and heat				1,000.00	
Stationery				1,200.00	
General expenses				3,000.00	
Insurance on stock and fixtures			$1,000.00		
Less unexpired			100.00	900.00	
Provision for depreciation on furniture and fixtures				600.00	
Total administrative expenses					27,500.00
Ordinary business profit					$28,128.00
Cash discounts gained					2,800.00
Gross income from all sources					$30,928.00
Provision for loss on bad debts				$4,800.00	
Cash discounts lost				2,500.00	
Total deductions from income					7,300.00
Net income					$23,628.00
Distribution of income					
Interest on mortgage				$750.00	
Proprietors account				22,878.00	23,628.00

And some argue that depreciation, because its amount is more or less indefinite, should not be made a part of the manufacturing cost, even when this depreciation is actually a direct result of manufacturing operations. After all, however, the main purpose of financial statements is to furnish information that will guide the management in the administration of the business. The chief consideration governing the arrangement of the information in these statements is the practical value of that information. If a manager is to compare the progress of his own business with that of similar lines, his financial statements must be the same general order as those of the other firms. It has been found best to ascribe to each function all expenses which the operation of that function involves. Therefore a manager, if he would obtain accurate results, must adopt this method. He must also classify the income statement in detail in order that he may be able to allocate the proper costs and expenses to that account.

9. *Divisible costs.*—There will be some cases in which a cost may be ascribed to two or more divisions of the statement. If this item cannot be separated with reasonable accuracy into its component parts, then it is advisable to carry it either as an administrative expense or to allocate it to the division to which the greater part of it belongs.

For example, general administrative salaries represent a cost which properly belongs to one phase of the business just as much as to another. They can-

not be allocated with any degree of accuracy unless the administrative officers keep time-records showing exactly the amount of time they give to each kind of work. But it is seldom possible for the officers to keep such records. The same may be said in regard to any other administrative expenses. Rather than instal the elaborate cost system necessary if these expenses are to be distributed over manufacturing and trading operations, the management generally lists each separately in the economic summary under a heading which clearly designates that it is an expense pertaining to all the business and not simply to a part.

10. *Departmental statement.*—The business man wishes to know a great deal more than simply what his total profit or loss amounts to, and how it is allocated to the various operating functions. If his business is composed of several departments he desires to know the progress of each department, as well as the progress of the business as a whole. To this end he prepares departmental statements, summaries which are complete in themselves, but which must be grouped and added before he can ascertain the total profit and loss. A separate account is kept with each department in order that expenses and income may be properly distributed.

11. *Illustration of departmental statement.*—In some lines of business the organization is such that selling costs, and even many administrative costs, are incurred separately, in connection with the several lines of product or service. The following form,

	Jan. 1 to June 30, 1910.	July 1 to Dec. 31, 1910.	Jan. 1 to June 30, 1911.	July 1 to Dec. 31, 1911.	Jan. 1 to June 30, 1912.	July 1 to Dec. 31, 1912.
Suits & Coats						
Sales	$94,202.79	$89,600.31	$111,073.23	$107,218.12	$120,862.41	$99,514.28
Cost of Goods Sold	63,432.05	60,696.74	73,068.56	70,202.51	82,368.56	66,261.86
Gross Profit	30,770.74	28,903.57	38,004.67	36,925.61	38,493.85	33,252.42
Expenses	19,737.29	20,044.85	20,237.75	22,883.57	23,982.80	22,588.99
Dep't Profit	11,033.45	8,858.72	17,766.92	14,042.04	14,511.05	10,663.43
Waists						
Sales	26,883.04	26,387.72	33,905.18	28,277.69	31,742.38	29,735.78
Cost of Goods Sold	19,148.66	20,344.13	26,098.57	21,716.42	21,841.13	20,778.36
Gross Profit	7,734.38	6,043.59	7,806.61	6,561.27	9,901.25	6,957.42
Expenses	5,373.81	5,905.43	6,342.30	6,392.39	6,347.36	6,348.01
Dep't Profit	2,360.57	138.16	1,464.31	168.88	3,553.89	609.41
Millinery						
Sales	29,035.42	29,259.39	29,927.54	30,068.09	27,026.24	29,371.33
Cost of Goods Sold	18,866.36	20,857.20	20,762.09	20,709.08	15,315.81	19,619.45
Gross Profit	10,169.06	8,402.19	9,165.45	9,379.01	11,711.43	9,751.88
Expenses	8,307.48	8,796.04	9,605.68	8,530.43	8,157.64	9,142.97
Dep't Profit	1,861.58	—393.85	—440.23	848.58	3,553.79	608.91
Furs						
Sales	19,307.95	3,865.50	19,239.23	2,662.55	20,364.79	2,567.05
Cost of Goods Sold	12,891.34	2,543.02	11,721.11	1,779.15	13,654.08	2,761.71
Gross Profit	6,416.61	1,322.48	7,518.11	883.40	6,710.71	194.66
Expenses	3,774.80	1,002.31	4,294.02	1,012.56	4,721.67	985.99
Dep't Profit	2,741.81	320.17	3,224.09	—129.16	2,439.04	—1,080.65
Skirts						
Sales	12,782.54	19,607.39	12,985.47	15,478.76	9,535.21	9,320.34
Cost of Goods Sold	8,534.76	12,648.35	9,252.19	9,564.79	7,247.07	7,173.79
Gross Profit	4,247.78	6,959.04	3,733.28	5,913.87	2,288.14	2,146.55
Expenses	2,700.82	3,934.02	2,655.57	3,461.06	2,462.84	2,374.93
Dep't Profit	1,546.96	3,025.02	1,077.71	2,452.81	— 174.70	—228.38
Jewelry & Neckwear						
Sales	10,045.99	9,476.17	13,362.56	7,507.53	10,415.39	7,393.38
Cost of Goods Sold	11,396.63	7,336.02	7,661.34	6,355.67	6,910.02	7,723.94
Gross Profit	1,250.64	2,140.15	6,701.22	1,151.85	3,505.37	169.44
Expenses	3,136.53	3,000.05	3,525.69	2,807.69	3,185.98	3,625.03
Dep't Profit	— 4,386.17	— 859.90	2,175.53	—1,655.84	319.79	—3,455.59

page 215, gives a comparative statement of the operation of the various departments of a certain department store whose organization is of this type.

This statement is both interesting and instructive. It shows which lines of goods are making substantial contributions to profits, as the business has been conducted, and which are not. "Suits and coats" is apparently a profitable department. The waist department is also profitable, altho not to the same degree, while "jewelry and neckwear" shows a loss. The business of the other three departments is variable—sometimes profitable, and sometimes unprofitable, but always doubtful.

A careful study of this statement form raises questions of business policy. Would it not be advantageous to abolish the jewelry and neckwear department? If this is not done, an investigation to determine the efficiency of its operation should certainly be made. Again, what is the matter with the management of the whole store, or with that of the sales department, that the statement should show a general decline in the profits? This brief analysis serves to indicate the uses which may be made of such a form of statement.

12. *Substatements.*—The rule is important enough to warrant repetition, that in the preparation of an economic summary it must always be borne in mind that information is of the greatest value when it is presented in condensed form. Consequently it is of the utmost importance not to permit the summary

to become clogged with a mass of detail. For this reason it is advisable to set down details in substatements and to keep these separate from the economic summary. Otherwise the primary end and object of the summary is frustrated.

13. *Preparation of economic summary.*—In the discussion of the working sheet the method of gathering information preparatory to making an economic summary was explained in some detail. In the working sheet on page 170, there appears in the column headed, "economic summary" a group of accounts that must be combined into a statement that will present classified, intelligible information regarding the progress of the business for the past year.

Since the firm whose accounts are the subject of this illustration is a manufacturing concern, the manufacturing expenses must be ascertained and noted in the order of their accumulation. On page 212, a statement of income and profit-and-loss drawn from this working sheet is presented. This statement, which is in narrative form, begins with a list of the amount of sales; from the total the allowances on sales are deducted. The balance remaining, $558,500, represents the net sales for the year.

The cost of the goods sold and the expenses incurred in selling them must next be accumulated. The first item, of course, is the raw material used in the manufacturing operations. At the beginning of the year there was on hand raw material to the amount of $13,500. The firm purchased $200,000 worth of material

on which they received a trade discount of $4,000. At the end of the year there remains $16,750 in raw material. In other words, $192,750 worth of raw material has been taken out of stock for manufacturing purposes. To this material there was applied $240,000 worth of services for which the firm has paid, and $3,000 worth for which they have not yet paid. The superintendent's salary was $10,000, while the factory light, heat and power, inclusive of accrued but unpaid items, amounted to $21,000.

The amount of supplies consumed in manufacturing operations is made up of the total of the inventory on hand at the beginning of the year, plus the purchases during the year; from which must be taken the inventory at the end of the year. The actual amount of insurance that has expired during the year, plus the charges for freight brought to the factory, the sundry factory expenses and the taxes on land and buildings, together with depreciation on the production assets used in the manufacturing process, make up the total charge against manufacturing for the year.

From this manufacturing cost must be taken the value of goods in process at the end of the year. If an inventory of goods in process had been made at the beginning of the year, the value of those goods would be added to the manufacturing charges for the year before the value of the goods in process at the end of the year was deducted. After the cost value of unfinished goods has been eliminated, there remains a bal-

ance of $489,122, which is the cost of goods completed during the year.

Of course, not all these goods were sold, and there were some goods on hand at the beginning of the year; consequently from the cost of the goods manufactured during the year the firm deducts the value represented by the excess of the goods on hand at the end of the year over the goods on hand at the beginning of the year. This is simply another way of recording inventory adjustments. If there are more goods on hand at the end of the year than there were at the beginning of the year, it is evident that the cost of the goods manufactured during the year is not the total cost of the goods sold during the same period. Therefore in order to determine the cost of the goods sold, the cost of whatever goods have been added to the stock during the year must be deducted from the manufacturing cost.

In this way an item of $487,822 is obtained, which represents the cost of the goods sold. Before the profit on sales can be determined, the selling expenses must be accumulated. Therefore the following items are set off separately: packing material, less the value of the amount on hand at the end of the year, salesmen's traveling expenses, advertising, less the prepaid portion, commissions paid and accrued, and freight on sales, amounting to $15,050. When the manufacturing cost is added, the total is $502,872, which represents the selling cost of the goods. This

amount is deducted from the net sales, and the balance is $55,628, total profit.

From this sum must be deducted the administrative expenses, such as office salaries, paid and accrued, office light and heat, stationery, general expenses, expired insurance and depreciation on furniture and fixtures. This leaves us an ordinary business profit of $28,128.

This business profit must be adjusted to include the results of financial transactions and deductions from income. Consequently the cash discount is added, and the total is $30,928, the gross income from all sources. The deductions from income, such as cash-discount loss and loss expected on account of bad debts must be subtracted. The net income is then, $23,628.

14. *Proprietor's account.*—If the proprietor had furnished all the money required to start and operate this business, the net income would belong entirely to him. But he was apparently unable to finance his proposition and had to borrow $15,000. Consequently he must share his income with the other investors in the business. He gives them their shares, which are fixed by contract, and retains the balance. Thus the distribution of net income is made up of $750, which is paid to the mortgagor, and $22,878, which belongs to the owner. Unless the owner draws out this profit, his capital now becomes increased by the amount of profits made for the year.

REVIEW

What is the purpose of financial statements?

Discuss the designations applicd to such statements and their appropriateness.

Why cannot a standard form be given for the economic summary?

What are some of the special purposes of financial statements in a manufacturing concern? In a department store? How are they attained?

When considerable detailed information is desired, what is the best way of presenting it without unduly complicating the financial statement?

How do economic summaries suggest and determine administrative policies?

CHAPTER XIII

BALANCE SHEET

1. *Definition and origin of a balance sheet.*—We have seen that at any given moment the balances of some accounts in a business represent rights held by the business and rights held by others against the business. If the business is considered as a distinct and separate entity, the proprietor's investment may even be regarded as a right which he holds against the business.

A balance sheet is the statement by which these various kinds of rights are indicated and classified according to relation with the business or their effects upon it. On the one side are the rights held by the business which are assets and, opposed to these, are the rights held against the business or the divisions of ownership of the assets.

Some authorities may take exception to the statement that assets are rights held by the business. A firm holds any tangible asset not because of its personal characteristics but rather because it gives a command over services or a right to demand something from another. Accounts receivable and notes receivable, are rights which the business holds against others,

which may be turned into money on demand. Similarly, buildings, machinery and other equipment, are held because the business has the right to their services.

2. *Use of a balance sheet.*—In order to develop a good form of balance sheet one must keep in mind the various kinds of information which it should make available. These may be classified as follows:

1. The total investment in the enterprise at the time the statement is made. A list of assets in any order will accomplish this if the assets are correctly valued.

2. Distribution of interest in the total capital. A list of liabilities and proprietorship as opposed to a list of assets, will accomplish this, regardless of arrangement.

3. The amounts owed to the business by other persons, with an indication of the degree of collectibility of these debts.

4. The amount of capital invested in production assets and the amount invested in assets which is quickly convertible into cash.

5. The relationship between the amounts to be paid and the funds with which they shall be paid.

Liabilities which must be met in the near future must of necessity be liquidated by parting with some asset. The exact amount of assets available for the paying of these liabilities will be brought out if the balance sheet is prepared in such a form as to show the amounts due and the funds with which they will be met. This applies not only to current payments but to fixed payments and the distribution of profits. If

a business has been blest with large profits which have not yet been realized in the form of cash or such assets as may be immediately and easily converted into cash, the owners cannot withdraw these profits for their personal use until they have provided cash or its equivalent with which to make the distribution.

3. *Classification of assets.*—There are three standard classifications into which assets may be divided, namely: "current assets," "fixed assets," and "prepaid expenses or deferred charges to operations," also known as "deferred assets."

Current assets consist of cash and those assets which may be readily converted into cash in the ordinary course of the business, as accounts receivable, notes receivable and a stock of unsold merchandise. In some cases current assets will include bonds and stocks owned, and other like items if these are held for temporary investment only.

The assets with which the business is carried on are termed fixed assets. These include land, buildings, machinery, furniture, fixtures and other equipment. Intangible assets such as franchises, patent rights, good-will, and securities held for permanent investment, will usually be classed as fixed assets. The common features of these assets are their durability and the fact that they are the instruments with which business operations are carried on, in the case of physical assets, and the means of securing or holding control over competitors, in the case of intangible assets.

Prepaid expenses or deferred assets include those

expenses which have been incurred and entered on the books prior to the actual receipt of the services for which they are intended. They differ from current assets in that the object is not to convert them into cash.

4. *Classification of liabilities.*—Liabilities are also divided into classes in the same way as the assets. Debts which must be met in the immediate future will be grouped under the heading of current liabilities. Debts which will not come due for some time or which are covered by pledged assets (as in the case of mortgage bonds) will be given a separate heading "funded debt."

If reserves have been set aside to cover depreciation in assets or decreases in income these reserves should be treated as an actual reduction in the value of the appropriate asset account, and not be given a separate section on the credit side of the balance sheet.

Finally the proprietor's share in the business will be indicated separately. If there are several proprietors, or if the ownership is in the form of a stock corporation, the divisions of ownership will be clearly indicated.

5. *Form as governed by purpose.*—The main feature to be considered in deciding upon the form of balance sheet, will be the kind of information which is to be presented. If the proprietor is applying to a bank for a temporary loan he would naturally indicate his current resources as opposed to his current liabilities. In order that emphasis may be placed on

this condition, current liabilities and current assets are placed first on their respective sides of his balance sheet.

On the other hand, if a statement is presented as evidence of ability to finance a long time loan, the owner of the business would probably indicate his financial stability by emphasizing the relation of his fixed or permanent assets to his fixed liabilities. This same arrangement would be used if he wanted to emphasize his earning power, which is only another factor to be considered in connection with an estimate of his ability to finance a long time loan.

In every case some governing principle should be followed thruout the preparation of the statement. It may be desirable to list all assets in the order of their availability, beginning with cash and ending with the item least possible of conversion into immediate cash. If financial condition, stability of income, and the like, are to be indicated, the assets should be presented in the order of their permanency. This means that fixed assets would be listed first, and cash last, since cash is the least stable of any asset.

6. *A form of balance sheet.*—The following is the form of balance sheet in which depreciation has been deducted from the assets. In this illustration, capital is placed last on the credit side, chiefly because it indicates what is left for the proprietor after the liabilities have been liquidated. The assets are arranged in the order of liquidity and the liabilities naturally follow the same plan.

ASSETS

Current Assets		
Cash	$1,129.	
Notes Receivable	3,500.	
Accts. Receivable	4,371.	
Merchandise	7,500.	$16,500.00
Prepaid Expenses		
Postage	$40.	
Stationery	250.	
Rent Paid in Advance	200.	
Unexp. Ins. Prem.	122.50	
Prepaid Wages	200.	812.50
Fixed Assets		
Land	3,000.	
Buildings $25,000.		
Less Deprec'n 1,800.	23,120.	
Furniture $1,750.		
Less Deprec'n 750.	1,000.	
Stable Equip. $2,500.		
Less Deprec'n 1,000.	1,500.	
Machinery $40.000.		
Less Deprec'n 8,000.	32,000.	60,620.00
		$77,932.50

LIABILITIES AND CAPITAL

Current Liabilities		
Notes Payable	$3,000.	
Accounts Payable	5,400.	
Unpaid Wages	2,200.	
Unpaid Taxes	1,000.	
Accrued Int.	337.50	$11,937.50
Funded Debt		
First Mtg. Bonds	$7,500.	
Second Mtg. Bonds	5,000.	12,500.00
Capital		
Investment	$35,000.	
Undrawn Profits		
Previous Periods $10,000.		
Current Periods 8,495.	18,495.	53,495.00
		$77,932.50

This form does not lend itself so well to the comparison of the amount of the current assets with the combined total of the current liabilities and undrawn profits; but the profits are not really available for withdrawal—they have been invested in "fixed assets," as also have some of the funds obtained on current liabilities. It is easily seen that the "fixed assets" considerably exceed the whole "funded debt," and the original "investment" of the proprietors.

In practice the right side is frequently labeled simply "liabilities" altho legally the proprietors' interest does not constitute a liability.

The balance sheet on page 229 illustrates the arrangement of assets, liabilities and capital as presenting the typical report of large American corporations.

Here the "fixed assets" are stated first, followed by the "current assets," the "prepaid expenses" coming last. On the other side "capital stock" (which, in a corporation, takes the place of "original investment") is usually placed first and followed by the "Funded Debt" or long time debts, these two often being grouped together under the caption "capital liabilities"; second, come the "current liabilities," and finally the remainder of the capital or proprietorship under the name of "surplus."

7. *Theory of balance sheet preparation.*—Since a balance sheet is simply a statement of the condition of the business it need not necessarily be taken from the accounting records. There are two ways of constructing such a statement. One involves simply an

June 30 1913	ASSETS	June 30 1914
	Fixed Assets	
$15,000.00	Land	$20,000.00
115,600.00	Buildings	110,976.00
160,000.00	Machinery	169,060.00
15,000.00	Delivery Equipment	12,500.00
7,500.00	Office Equipment	6,750.00
5,000.00	Furniture & Fixtures	4,250.00
$318,100.00	Total Fixed Assets	$323,476.00
	Current Assets	
6,780.00	Cash	19,250.00
21,000.00	Notes Receivable	15,000.00
39,340.00	Accounts Receivable	49,229.00
20,000.00	Finished Goods	23,000.00
15,000.00	Goods in Process	18,000.00
5,000.00	Raw Materials	10,000.00
10,000.00	Fuel	6,000.00
$117,120.00	Total Current Assets	$140,479.00
	Prepaid Expenses	
200.00	Postage	190.00
1,250.00	Stationery	1,000.00
735.00	Rent Paid in Advance	735.00
2,500.00	Prepaid Taxes	3,000.00
1,000.00	Prepaid Wages & Salaries	1,075.00
$5,685.00		$6,000.00
$440,905.00	Total Assets	$469,955.00

June 30 1913	LIABILITIES AND CAPITAL	June 30 1914
$150,000.00	Capital Stock	$175,000.00
	Funded Debt	
50,000.00	General Mortgage Bonds	65,000.00
25,000.00	First Mortgage Bonds	15,000.00
$75,000.00	Total Funded Debt	$80,000.00
$225,000.00	Total Capital Stock & Funded Debt	$225,000.00
	Current Liabilities	
40,000.00	Collateral Loans	10,000.00
12,000.00	Notes Payable	15,000.00
21,600.00	Accounts Payable	16,500.00
4,000.00	Unpaid Wages	4,500.00
2,500.00	Unpaid Taxes	3,000.00
1,350.00	Accrued Interest	1,500.00
$81,450.00	Total Current Liabilities	$50,500.00
	Surplus	
100,000.00	Undivided Profits, Previous Year	134,455.00
34,455.00	Undivided Profits, Current Year	30,000.00
$134,455.00		$164,455.00
$440,905.00	Total Liabilities & Capital	$469,955.00

actual investigation of quantities and values of assets and extent of liabilities. When the assets and liabilities have been listed the excess of assets over liabilities constitutes the proprietor's share in the business. This may be called the inventory method of preparing a balance sheet.

Again, a statement of the condition of the business as it exists today may be taken from the accounting record and made into a balance sheet.

In practice these two methods must be combined to produce an accurate and satisfactory balance sheet. All records which come as a matter of the regular business transactions will be recorded currently and will be adjusted at the end of the statement period according to their relations with the outside factors which are the result of an actual inventory. If the proprietor wishes to be certain of the valuation which he is placing on his assets he would verify the book records by an actual inventory. This actual inventory is, however, seldom required and indeed can seldom be made conveniently.

8. *Limitations upon the balance sheet.*—As the reader has noted a balance sheet is at best a scientific estimate of the financial condition of a business concern. The basis of valuation of assets should be costs. However, public accountants and business men value the assets as a rule at cost or market whichever is lower. This rule is based on conservatism, since it is safer to understate rather than to overstate the financial condition of a business concern.

The term "market" referred to means the market in which the merchant or manufacturer would *buy* his goods or his materials and supplies; and not that in which he would sell.

9. *Supplementing the balance sheet.*—Where many accounts are carried on the books, it is seldom possible to give each separate asset or liability account a position in the balance sheet. If this were done the statement would become so large and so crowded with relatively unimportant details that the main data which that statement should furnish would be obscured. In fact it is better to present the balance sheet in a sufficiently condensed form so that tendencies and relations, as between groups of assets and liabilities, are indicated. For the details of any of these groups supplementary lists may be attached, giving whatever information may be desired.

10. *Balance sheet preparation.*—The reader noted that in the working sheet on page 170, a column was provided for the accounts which represented assets, liabilities and proprietorship. The accounts as presented there mean little because they are a mere listing of things owned and things owed. Each of the accounts must be analyzed and classified if we are to determine the financial condition of the business.

The following balance sheet is presented in such form as to point out the ability of the business to continue its present line of work. The current assets are listed first, then the other working assets, and finally the fixed assets, in order to bring out the fact

that the business is well supplied with current funds with which to meet its liabilities, and that it has a supply of working assets with which to continue the manufacturing operations. The supply of working assets may seem small; but the current assets are high enough so that more working assets may be purchased as they are needed.

Taking up the details of preparation the first item on the list represents current assets consisting of cash, notes receivable, accounts receivable, and inventory of finished goods, amounting to $203,800. Current liabilities which must be met out of these current assets, amount to only $190,675. As a matter of fact these current assets must be decreased by the amount which will be lost from bad debts. This would leave $193,600 as opposed to $190,675 in liabilities if this estimate is correct.

Of course, the liabilities need not all be met in the immediate future, consequently part of the current assets may be deflected to the purchase of further working assets. Notes receivable discounted are deducted from the notes receivable, and are given a place in the balance sheet to indicate the contingent liability which may arise in connection with them. It is well to append a foot note to the balance sheet calling attention to all such contingent liabilities.

In order that all statements and records may be completed, proprietorship transactions are shown in detail. The profits for the year which were obtained from the economic summary have been carried to the

THE BLANK COMPANY

BALANCE SHEET
AS AT
DECEMBER 31, 191–

CURRENT ASSETS				**CURRENT LIABILITIES**		
Cash		$87,500 —		Notes payable	$21,000 —	
Notes receivable	$86,000 —			Accounts payable	161,000 —	
Less notes receivable discounted	10,000 —	76,000 —		Accrued expenses payable	8,675 —	$190,675 —
Accounts receivable		20,000 —		**FIXED LIABILITIES**		
Inventory of finished goods		20,300 —	$203,800 —	Mortgage on building		15,000 —
WORKING ASSETS				**RESERVES**		
Inventories				For loss on bad debts	$10,200 —	
Raw material	$16,750 —			For depreciation on plant and machinery	7,250 —	
Goods in process	5,450 —			For depreciation on land and buildings	2,952 —	
Factory supplies	930 —			For depreciation on furniture and fixtures	1,600 —	22,002 —
Packing material	150 —	$23,280 —		**PROPRIETORSHIP**		
Prepaid Items				Investment July 1, 191–	$86,500 —	
Advertising	$1,000 —			Profits for year	$22,878 —	
Insurance	300 —	1,300 —	24,580 —	Less withdrawals	2,075 —	20,803 —
FIXED ASSETS				New capital at end of year		107,303 —
Plant and machinery		$50,000 —				
Land and buildings		49,600 —				
Furniture and fixtures		7,000 —	106,600 —			
			$334,980 —			$334,980 —

Note:—There exists, at this time, a contingent liability of $10,000 on account of notes receivable discounted.

balance sheet in total. The withdrawals of such profits by the proprietor have been listed as a deduction and the net amount of profit recorded as an addition to proprietor's investment.

11. *Supplementary entries.*—After the trial balance is drawn off there will frequently be found several entries which should have been made or errors which must be corrected. It is customary to draft these in memorandum form and incorporate the data in the statements. After the statements are balanced and we are certain that no more such entries will be necessary, we may put the entries in our journal and post them to the ledger. At the same time the trial balance should be changed to cover these adjustments.

12. *Proving up.*—In Chapter X the reader noted how the accuracy of the working sheet was proved by extending the total of the economic summary column and totaling the latter. Statements are proved by carrying the net profit from the economic summary to the balance sheet. If the asset side of the latter equals the liability and capital side, the work has been correct.

REVIEW

What is a balance sheet? Explain its uses.

State the groups into which assets and liabilities are divided. Why does the order of presentation of these groups in the balance sheet differ according to circumstances?

What are the sources of inaccuracy in the details of a balance sheet?

Study any balance sheet and interpret the meaning of its entries.

CHAPTER XIV

OPENING AND CLOSING ENTRIES

1. *Kinds of entries.*—The entries in the books of accounts which record the history and progress of the business may be grouped into the following three divisions: (1) opening entries; (2) current entries; (3) closing entries.

As the current entries have already been considered in detail, this chapter will treat only of opening and closing entries.

2. *Opening entries.*—An opening entry is one in which the details of starting a business, the rules under which the business is to be operated, and the rules which govern its financial transactions are disclosed. It occurs only on the formation of a new business, or on the reorganization or purchase of an existing business.

It is important that the opening entry be sufficiently clear to govern the bookkeeper in his work thruout the duration of the business. He must be guided absolutely by the provisions for the distribution of profits, disbursements of funds, and similar provisions.

In a partnership, for example, an abstract of the partnership agreement should be incorporated in the

opening entry; if, on the other hand, the business is a corporation, the kind of stock with the amounts of each, the total capitalization, the name of the company, etc., are all required.

3. *Illustration of an opening entry.*—The following, for instance, indicates the opening entries to be made when a partnership purchases an existing enterprise:

A & B have this day formed a copartnership to be known as the firm of A & B. They have purchased the grocery business of A, located at ..... They will continue this business and will expand it to such an extent as may seem advisable. The partnership shall continue until either partner wishes to withdraw, or until the partnership is dissolved by law.

A invests .....$ 8,000
B invests 10,000

Profits and losses are to be shared equally. Interest will not be allowed on investment. A drawing account of $1,200 is allowed for each partner, and interest at the rate of 6 per cent will be charged on any withdrawals exceeding the rate of $100 a month.

It will be noted that this entry gives the complete details of the financial and bookkeeping rules for the partnership. The actual investments in cash and the disbursement of this cash in purchasing the business will be recorded in the cash book. If A, for example, turned in his business in lieu of the cash investment which he was supposed to make, he would receive credit for his investment by means of the following journal entry:

Store and fixtures $5,000
Stock 3,000

To A's capital account $8,000

As an explanation of this entry, we would say:

To record A's investment in the firm of A & B, whereby he has turned over to this business the fixtures and stock in trade of the business formerly owned by him at ..... as per agreement of sale dated .....

In the same way, if the business purchased, involved the transfer of one hundred or more items of equipment affecting one hundred or more accounts, we would first make our memorandum entry in the journal, recording the details of the formation of the new enterprise. Then, thru our cash book and our journal, we would record the various investments which the several partners had made.

4. *Opening entries for a corporation.*—The opening entries for a corporation take somewhat the following form:

THE BROWN MANUFACTURING COMPANY
Incorporated under the Laws of the
State of ....., with an
Authorized Capital
of
$25,000
divided into One Thousand Shares of $25 each.

This entry would, of course, be made in the journal of the corporation.

The subscription to the stock should appear in the

subscription book. We then make in the journal the following entry:

Subscription account	$25,000	
To Capital stock		$25,000
Representing the subscriptions to the capital stock of the Company, viz.:		
J. Smith	200	shares
A. Brown	300	"
P. Marks	250	"
W. Freund	250	"

5. *Necessity for accurate and complete records.*— Our previous discussion of books of account has indicated that they should give a complete record or history of every business transaction. These records should show not only the present condition, but also the past, and the factors which brought about this condition. The reader has noted that at the end of every year, or more frequently, the information contained in our accounting records is summarized in the form of a balance sheet and an economic summary. He also noted that since the records were incomplete, various adjustments had to be made before an accurate statement of conditions became possible.

If statements are prepared monthly, there is probably no necessity of making all the records on our books in order to bring them into agreement with the statements. At the end of each year, however, the books should be complete in themselves, showing all

the adjustments which have been made as steps in the preparation of the financial statements.

Since business is operated for the benefit of its owners, all profits accrue to, and all losses are borne by, these owners. Therefore, those accounts which measure the profitableness of the business, the accounts which indicate its progress, such as income, expense, profit and loss credits, profit and loss charges, are but divisions of the proprietor's account temporarily separated to show the progress of and various changes in the business. At stated intervals these accounts are grouped; first, to ascertain the amount of profit made by each division of the business; second, to ascertain the total profit for the entire business transferable to the owner.

6. *The accounting period.*—The period for which these statements are made up is usually known as a fiscal or calendar period. The accounts are, as a rule, closed out yearly, and the year covered is known as the fiscal year. They begin with the date on which the business was started, and have no relation to the calendar year. To illustrate, a firm starting business on July 1 would have been operating for a fiscal year at the end of June 30, of the ensuing year.

This division into regular periods of time makes possible a comparison of results from year to year. If one statement covered a period of eighteen months, and the next statement a period of twelve months, there would obviously be little advantage in compari-

son, and consequently little possibility of estimating the yearly progress of the business.

The month is the customary unit period in accounting records. Accountants now, however, to a greater extent recognize the value of making a four-week period the unit period rather than that of a month. They base this preference on the fact that the varying number of days in a month, makes accurate comparisons of the results of one month with those of another month, impossible. When records are kept according to four-week periods, and one period is compared with any other, no variation due to differences in the number of days covered, enters into the comparison.

7. *Monthly and yearly closings.*—The bookkeeper frequently speaks of "closing his books" at the end of each month, and to a certain extent he is correct. He closes them sufficiently to permit the preparation of the monthly statement. He makes certain adjustments which are apparent to him, but he does not change his books entirely in accordance with the statements themselves.

At the end of the fiscal year, however, the bookkeeper makes all the adjustments which were made prior to the preparation of the financial statement, and records these adjustments on his books. Thus, his books will show exactly the same information that is given in the financial statements. He then proceeds to group the economic accounts in the same form in

which they are grouped in the statements themselves. He will carry: first, a manufacturing account; secondly, a trading account, and thirdly, a profit-and-loss account. He must consider the same factors that were taken up in our deduction of the financial statements. He may, at times, prepare departmental profit-and-loss accounts, as well as a summary account.

8. *Methods of closing.*—The various adjustment entries, the transfers from the economic accounts to the summary accounts, and the transfer of the business in the summary accounts to the proprietor's account, should not be made directly from account to account in the ledger. They should be expressed by means of properly explained journal entries. The use of this method will safeguard against improper manipulation of accounts to conceal frauds or embezzlements, and will assist the auditor in ascertaining whether or not there have been any such improper manipulations. It will aid too, in increasing the accuracy with which these transfers are made.

9. *Working sheet.*—The work of closing must be done systematically in order to prevent errors and oversight. Probably the best procedure in preparing to close the books is to make use of a working sheet as on page 170. All the adjustments appearing in the adjustment column, are first recorded and in the case illustrated, give rise to the following entries in the journal:

Direct wages	$3,000	
Factory, light, heat and power	1,000	
Taxes on land and buildings	500	
Commissions	3,000	
Office salaries	800	
Interest on mortgage	375	
To Accrued expenses payable		$8,675
Sales	$4,800	
To Reserve for bad debts		$4,800
Manufacturing account	$3,202	
To Reserve for depreciation on plant and machinery		$2,250
Reserve for depreciation on land and buildings		952
Depreciation of furniture and fixtures	$600	
To Reserve for depreciation on furniture and fixtures		$600

In every case we must give appropriate explanation of what these entries cover. At the beginning of the next year, such entries as are purely estimates may be reversed, as the charges will come thru in the regular course of business. Where the accrual accounts, for instance, remain on our books, payments of the items included therein would be charged against the accrual account.

10. *Prepaid items.*—We do not make an entry covering the prepaid expenses. The total of these expenses is already on our books, and in transferring those accounts to our profit-and-loss account, we need only take up as expenses the consumed portion, leaving the balance to be carried forward as an expense of the ensuing year.

11. *Closing out the economic accounts.*—Now that we have made all the necessary adjustments, we need only transfer the different economic accounts to the

various divisions of "profit and loss" which have been set up. The first entry would be:

Sales	$560,000	
To Trading account		$560,000
Trading account	$1,500	
Allowances on sale		$1,500
Manufacturing account	$513,050	
Purchases of raw material		$200,000
Old inventory of raw material		13,500
Direct wages		243,000
Superintendence		10,000
Factory, light, heat and power		21,000
Purchases of supplies		2,450
Old supply inventory		16,000
Insurance on building and machinery		1,000
Freight inward		900
Sundry factory expenses		4,200
Taxes on land and buildings		1,000
Trade discount gained	$4,000	
Manufacturing account		$4,000
Trading account	$489,122	
Manufacturing account		$489,122
Trading account	$19,000	
Old inventory of finished goods		$19,000
Trading account	$15,200	
Packing material		$1,300
Salesmen's traveling expenses		6,000
Advertising		1,800
Commissions		4,500
Freight outward		1,600
Trading account	$55,628	
Profit and loss		$55,628
Profit and loss	$30,150	
Office salaries		$20,800
Office light, heat and power		1,000
Stationery		1,200
General expenses		3,000
Insurance on stock and fixtures		900
Cash discount lost		2,500
Interest on mortgage		750

Cash discount gained	$2,800	
Profit and loss		$2,800

Profit and loss	$2,800	
Proprietor's account		$22,878

12. *Discussion of these entries.*—The reader will note that by means of these entries we have transferred every economic account to its appropriate division of the profit-and-loss account. After having accumulated the cost of manufacturing, we transfer that to the debit of the trading account. Here we sell a definite amount of goods at a certain expense, and account for the balance of the goods manufactured by our inventory at the end. These entries are, in effect, a duplication of our statements of income and of profit and loss, given on page 212.

It is sometimes the custom to make an entry crediting all the assets and charging all the liabilities at the end of each year. At the beginning of the ensuing year, this entry is made in the reverse form, putting the assets back on our books with a new balance. There seems to be no good reason for reversing the entry, beyond the fact that it proves the accuracy with which the books have been closed out. The closing and opening entries must balance, just as our balance sheet must balance. If we prepare a trial balance of our ledger after closing, and compare this with our balance sheet, we would find the two to be identical. If this condition does exist, we may close each account out by writing in the word "balance," and bringing down a new balance at the beginning of the next

year. A trial balance of these new balances would then be checked against our balance sheet as proof of their accuracy.

REVIEW

What should go into the opening entries of (a) a partnership, (b) a corporation?

Why should closing entries be made in the journal?

Explain derivation of closing entries from working sheet.

CHAPTER XV

LABOR SAVING DEVICES

1. *Guides in developing labor saving devices.*—No standard form of record and no standard method of carrying on work has ever been devised which would be as equally well adapted to one business house as to another. In developing a system of accounting for any business its particular needs must be especially provided for.

Accuracy, speed and sufficient information are the only requisites to a good system. The data may be scattered in various books, ledgers may not balance, (if the balancing data is readily available), books may be added, or books may be cut out, forms may be varied at will, ledgers and posting media may be combined into a single volume, different ledgers may be found within the same covers, and so long as the resulting system serves its purpose with satisfaction all such combinations are permissible.

A centralized control of the system is necessary. A standard routine for handling the work must be developed and no change made in this routine except upon approval and authority. This routine must be such as will bring full data to the bookkeepers for their use without waste of effort or time.

2. *Satisfactory records.*—Intelligent records which can be interpreted by persons not familiar with the particular system are of importance. Intricate and elaborate systems which furnish complete information in intelligible form and with but slight effort to the bookkeeper may be of no value to the manager or to outsiders when they attempt to go over the records. No set of accounts should be dependent upon the knowledge of one man for their interpretation. Speed must be sacrificed to clearness if necessary.

The work involved in keeping these records should be made as automatic as possible. Every operation should be reduced to a single step. For example, if a bookkeeper is posting let him do nothing but transfer the amount from the posting media to the ledger account. He should post only one side of the account at once. If he must keep watch on the condition of the account to which he is posting or other information, he will be more likely to pass over an amount or to make an incorrect posting. If the posting, checking, drawing off information from the accounts which have been posted, and the like, are performed in separate operations and at separate times, increased accuracy is certain to result.

3. *What is meant by a labor saving device.*—It is perhaps difficult to say that any particular operation or routine ought to be classified as a special labor saving device. The labor saving devices of one period become the standard practice in the next. Without doubt columnarized books of preparatory entry,

controlling accounts and the like were all regarded as labor saving devices worthy of special mention when they were first put into use. Nowadays this part of bookkeeping routine has become so standardized that a treatment of the principles of accounting would be incomplete unless these forms of books or these methods were discussed.

In every line of business particular methods will be followed which are adapted to that line alone. Bankers, for instance, have evolved a very elaborate and accurate method of handling their work whereby they are able to take off a balance sheet daily, within a short time after the day's work is ended. They have methods of checking and proving their work so that little or no time is spent in looking for errors.

Let us approach the subject from the following viewpoints:

1. Books and forms used,
2. Accounts and accounting forms,
3. Records of original entry,
4. Posting media,
5. Ledgers,
6. Mechanical aids.

4. *Forms of books.*—It has become the established custom to make use wherever possible of loose-leaf books in which the sheets may be detached, transferred and changed at will. When new accounts are added, it is only necessary to insert a new sheet in the book. Such books have the advantages of cheapness, com-

pactness, uniform order of accounts, and a possibility of various combinations within one binder.

If the loose-leaf book is a ledger in which we wish to maintain our accounts in a certain order, the leaves may be shifted at will so as to maintain that order. When new sheets are inserted they will be placed in the order desired. It is possible to combine several different books in one by inserting sheets of the desired ruling wherever necessary.

For instance, the general and subsidiary ledgers may be kept in one book by having different colored sheets for each class of accounts. Again, in a small business it may be desirable to combine all the books of original entry by having a journal, cash book, sales book and purchase book, in one binder. This is also possible thru the use of appropriately ruled sheets of different colors.

5. *Indexing loose-leaf books.*—Difficulty may be experienced in indexing loose-leaf records. This disadvantage has been overcome in various ways. For example, if a ledger is kept in alphabetical order, new sheets will be continually added so that a numerical numbering of the sheets is impossible. To overcome this we may insert a control sheet for every alphabetical subdivision.

Thus for the "A" accounts, we would have a controlling sheet with the letter "A" on its tab, to serve as a guide in reference. The pages on which the "A" accounts are entered would be numbered, "A-1," "A-2," "A-3," etc. On the control sheet we would

enter the number of each sheet as fast as it is added. Thus, back of the "A" guide, there may be ten accounts, numbered, respectively, "A-1" to "A-10," inclusive. The guide sheet would have the same numbers on it, so that no sheet could be withdrawn without a record of it being kept. If the records are particularly important and subject to frequent handling, it may sometimes be advisable to insert the name of the account on the control sheet as well.

6. *Card records.*—Card records give the same flexibility and compactness as loose-leaf books. In some cases they are even more satisfactory, because of their greater flexibility. They are less permanent as a record, however, and are much more easily lost.

The most frequent use of card records is for the subsidiary ledgers which are controlled by controlling accounts. Accounts receivable are most frequently recorded on cards. When an account is closed it can be easily transferred to a separate file, so that without trouble or waste of time the subsidiary ledger is made to contain only active accounts.

An accurate control, however, is a prime requisite to the successful use of card records. If the cards are split into sections, it is advisable to have a control for every section. This control should simply show the reference number or the index number of the card and the name of the account. At frequent intervals it will be necessary to check the cards within that section against the control, so as to make certain that no card has been lost.

This is especially necessary as regards card ledgers, since the ledger would be out of balance if a card is missing. It becomes necessary, also, in the case of card records for customers' accounts, because it is essential to successful collection that accounts be followed up frequently and regularly.

7. *Advantages and disadvantages of these records.* —The advantages of any flexible record are more or less apparent. Saving of space and flexibility of handling are the most important. Obviously much time will be saved if the accounts follow each other in a regular order, and if transfers of accounts or additions of new accounts can be easily made.

The disadvantages are perhaps equally apparent. If a dishonest bookkeeper wishes to cover up some of his transactions, he may detach an entire page from one of the books and rewrite it, making such corrections as will hide his theft. When taken out of the book for one purpose or another, sheets may be lost, and thus the record will be incomplete.

There is also considerable doubt as to whether loose-leaf records would be accepted in a court as legal evidence. A loose-leaf journal, for instance, affords no proof that a particular entry was made under the date on which it is entered. There is nothing to prevent the entire sheet for that day being rewritten so as to present information favorable to the side which claims it as evidence.

In order to be on the safe side, many business houses keep their cash book and journal in the form

of permanently bound records, and maintain their subsidiary journals and ledgers in loose-leaf form. By this means they are able to enjoy practically all the advantages of loose-leaf records and still be able to maintain the more important records in bound book form, should they ever be compelled to present them in court.

8. *Original records.*—In every business the use of tickets, vouchers, or memorandum forms, is becoming more and more prevalent. Practically every entry going into the cash book, journal, sales book, purchase book or any of their subdivisions is evidenced in one way or other by some form of memorandum. As a general rule no use is made of these memorandums after the information has been transcribed in the book of preparatory entry. Of course, in the case of incoming bills, or carbons of outgoing bills, the original records are obtained and filed away for possible future reference.

There is no doubt but that if these original records are prepared in suitable form they will serve many ends now obtained only thru the use of detailed books of preparatory entry. If all the cash payments, for instance, are evidenced by a voucher, and if the voucher number for every transaction is entered in the cash book, we need make no further records there beyond the name of the account affected.

9. *Posting from tickets.*—If all the tickets are in a standard form and vouchers or tickets are made out for the few entries which have not previously been

so recorded, there is a complete record of the data contained in the book of original entry, but carried on tickets as well as in the books.

As tickets are naturally more flexible than a book, time will be saved if postings are made from these tickets. The tickets for a day, or for a month, can be arranged in the order in which the accounts in the ledger are carried. One could then post directly from the tickets to the accounts, making two operations by posting first the debits, and then the credits. The tickets can also be separated according to media and then according to the various accounts into which they will be posted.

10. *Advantages of this system.*—The advantages of this method are many. Greater speed and greater accuracy are perhaps the most apparent. Each separate ticket is placed close to the account before the posting is made. Only one ticket, and one amount comes to the attention of a poster at a time, and opportunities for errors are consequently reduced. It is possible to distribute the work among several employes where if books were used it would be necessary to compel one clerk to do it. It will be necessary to provide posting checks on the tickets themselves. Space should be left for the folio of the ledger to which the posting is made, and the initials or reference number of the clerk making the posting.

A good filing system is essential to the successful operation of this method. Reference is frequent and must be easy. Some business houses file each class

of vouchers separately in envelops. All vouchers representing cash payments, for example, would be filed in a separate envelop, headed "Cash payments from —— to ——." Other firms file them numerically in drawers, making no arbitrary division by dates.

11. *Carbon records.*—The use of carbon paper has been a great aid in reducing the mechanical labor of bookkeepers. All bills are now recorded in duplicate or triplicate for office records. Checks, reports and the like are made in original or duplicate form at the same operation. Far greater accuracy results, and disputes with customers are consequently reduced.

Check books for example, where formerly it was the custom to record the details of each check drawn on a stub, are now made in such a form that the writing of a check results in a carbon copy being made. Thin, unprinted sheets bearing only the check number, are placed in the check book following each sheet of checks. There is no danger then of neglecting to make the stub record at the time the check is drawn.

12. *A combination sales and billing book.*—It is at times possible to avoid some of the details of making out bills by combining that operation with the operation of writing up the sales book. To this end one page of the sales book will be made up of the series of bills perforated so that they may be detached. The next sheet would be a wider sheet onto which would be carboned all the data put on the orig-

inal bill. The columns at the right of this sheet represent the various classifications of sales and it is only necessary to distribute the sales themselves over these various columns.

On page 256 will be found examples of this form of sales book. When the original bill is made out, the left-hand side of the wider sheet is also filled out by the carbon impression. At the end of the day the bookkeeper need only distribute the total sales for each account over the sales classifications indicated in the columns at the right, and then total up each column. To prove his work he must make the total of the distribution columns equal the total sales as indicated in the carboned section at the left.

Where this form of book is used it is advisable to have loose-leaf sheets numbered consecutively and to bind them up after the records are made. Typewriters or billing machines will do this work mechanically and at the same time insure a legible copy. Accurate records and a great saving of time are the advantages of this method.

13. *Voucher register system.*—In every business it is desirable to have a complete record of the amount owed to creditors. As a means to this end individual accounts are carried in the ledgers with every creditor. If the number of transactions is large, these accounts will be carried in a subsidiary ledger and the total only shown in the general ledger.

As debts are paid regularly the creditor's account records a series of purchases which are paid within a

SALES BOOK

(Permanent Sheet)

Mr. J. Jones Auburn, N.Y. 3/10/n/60	L.F.	HAY	OATS	CORN	BRAN	BARLEY
300 bu. oats @ 50¢ $150 — 30 tons hay @ $15 — 450 — 360 bu. corn @ 60¢ 216 — $816 —		$450 —	$150 —	$216 —		

Bills in Sheets

(Short leaf of sales book)

The _____ Company

_____

_____

Sold to Mr. J. Jones
Auburn, N.Y. Terms 3/10/n/60

300 bu. oats @ 50¢	$150 —	
30 tons hay @ $15 —	450 —	
360 bu. corn @ 60¢	216 —	$816 —

short time. This means that each account for each transaction is debited within a short period of time. Any method which will avoid such "in and out" entries will naturally save time.

It is becoming more and more the modern tendency to pay cash at the time of purchase or shortly thereafter, and to take the discounts wherever they are offered. If this is not done a settlement will frequently be made by a note which runs for a definite period and thus reduces all liabilities to definite dates of payment. Other firms follow the practice of settling monthly for all liabilities irrespective of discount allowances.

The work of posting these debits and credits is a decided nuisance. The voucher register system affords a means of eliminating the accounts entirely. The purchase book becomes the record and the cash payments are posted to that instead of to the ledger account. Thus an entry in the purchase book which is not marked "paid" indicates an amount owing at the time the examination is made. At the end of the month the total amount due for the month is represented by the unchecked accounts in the purchase books.

Of course the credit from the purchase book would be made to an "accounts-payable," or "vouchers-payable" account. Cash payments would be posted in detail to the voucher register or purchase book, and in total to the general ledger account. The balance of the general ledger account naturally is the amount of bills unpaid. The individual bills in the purchase

book should equal the balance in this account.

14. *Memorandum books as posting media.*—The ordinary memorandum books as we have already seen, are bill books, note books, check books, and the like. Wherever the data going into these books becomes at all large, it may be advisable to transform the book into a posting medium and omit other records of such transactions. We have already described the working of a note book, and the same principles apply to a mortgage register.

For example, a bank, trust company, or real estate house, which handles many mortgages will keep a detailed record of these mortgages, as received. If this detailed record is properly columnarized, the book itself may be a book of original entry from which postings will be made to the various ledger accounts.

15. *Special features of loose-leaf journals.*—Thus far we have discussed loose-leaf records chiefly as applying to ledgers. Providing the legal features are satisfactorily overcome, loose-leaf books may be applied to every accounting record. We may classify journal entries without altering their time-honored form. Each frequently occurring entry may be assigned to a separate page, and additional pages may be inserted if needed.

Thus, if interest is charged on personal accounts, we could assign one page of our journal to records of these interest charges. The page would be headed, "Sundries Dr. to Interest." As each interest entry is made it should be entered on this page. The post-

ings of the debits to individual accounts is kept up day by day. As the pages fill up others are inserted and additions are made continuously up to the end of the month. At that time the total amount is credited to interest.

In the same way if we have any other frequently occurring transactions, we can assign individual pages to them and post in total. The miscellaneous entries occurring infrequently would naturally be recorded chronologically on separate pages.

16. *Side posting.*—Another method by which postings from the journal are made easier, is known as side posting. We use an ordinary journal with two money columns using the left-hand pages only as journal records. The right-hand page will be devoted to analysis of the entries. The two columns on the right must be supplemented by two more columns so that we can have two columns for the analysis of debts and two for the analysis of credits.

17. *Ledger systems.*—Ledgers afford many possible combinations which result in a time saving. Card systems, loose-leaf records, combinations of various ledgers, and the like have already been touched upon. It is not necessary to have all the data in every ledger. Offsetting accounts may be found in other books so long as they are available for quick reference when desired. The cash account, for instance, is frequently found only in the cash book.

If loose-leaf records are used, accounts should be transferred to transfer ledgers as fast as they are paid

up, so that the current ledger is never burdened with superfluous information. Whenever accounts are transferred from the general ledger to subsidiary ledgers, if loose-leaf ledgers are used, it will be necessary to make an entry, but it will be unnecessary to make all postings.

18. *Boston ledger.*—The Boston ledger is a common form used in banks. It affords an easy means of obtaining a daily balance, and a complete record of all transactions affecting the account. It is usually a controlling record, the details of which must be given elsewhere. Storage warehouses, real estate agencies, and other businesses whose patrons are many but in which the monthly transactions are few, have made frequent and satisfactory use of the Boston ledger. Its chief advantage is that whenever errors occur they may be easily located.

A form of the Boston Ledger sheet is shown on page 261. A new sheet must be added each month, but by the use of short sheets and binding on the right, it is unnecessary to rewrite the names of the account. The balance at the first of the month is brought forward and the debits or credits from the various books of preparatory entry are posted in the appropriate column. If an error has occurred, we may total the columns and prove them with the books from which they came. Many accounts are on a page and hence proof is made comparatively easy.

19. *Mechanical aids.*—Little can be said here of the possible aids which may be obtained from various ma-

chines which have been, and which are continually being, introduced. Billing machines and adding machines are perhaps the most common aids. Their use will vary with each business. Wherever machines can be used, such as in the writing of bills, preparation of customers' monthly statements at the time of posting, and the like, they will be a great help.

BOSTON LEDGER
(Master Sheet)
March 191—

ACCOUNTS	DATE	INITIAL BALANCE	DEBITS			CREDITS			CLOSING BALANCE
			CASH	SALES	JOURNAL	CASH	JOURNAL	SALES	

The billing machines now in use make it possible to post the ledger account and prepare a statement of each customer at the same time. The statement is, of course, a mere abstract of the ledger with certain information omitted. The addition of each account may be done at the time the posting is made, and a continuous record of the amount posted carried in

the machine so that, at the end of the day, the day's work may be checked.

If the machine total, for example, shows that $49,900 have been posted, while the sales books items for the day total $50,000, the bookkeeper knows at once that an error has been made. He does not have to wait until the trial balance is drawn off before knowing that an error has been committed.

Many types of adding machines are now on the market which will not only add and subtract, but which will multiply and divide. If many percentages are to be figured as a part of the preparation of financial statements, the use of such machines is almost a necessity.

20. *The automatic features of a good accounting system.*—An accounting system, to be successful, must be founded upon a satisfactory routine. No matter how extensively the work is subdivided, no matter how advanced the various books may be, the routine by which the information is gathered, classified, recorded and reported, must be complete or the system will fall down.

Bookkeepers should not be required to seek information. Standard forms should be prepared on which all other departments will report to the accounting department, data which the latter must record. Standard times should be set for the performing of every operation and the work so subdivided that each clerk will be busy all the time, but not be especially rushed at any particular time. Good refer-

ence files in which the information can be filed will be of inestimable importance.

21. *Standard methods of proving accuracy.*—The simplest method of verifying the accuracy of a bookkeeper's work is, of course, that of checking over what he has done. Disturbance and fatigue exact their toll in the form of errors no matter how capable a bookkeeper may be, while inattention and incompetency are always fatal to accuracy. The check on the bookkeeper's work may be made either by the bookkeeper himself or by some one else. It is probably safest to have somebody else do the checking, for a bookkeeper has a certain natural tendency to repeat an operation in exactly the same way in which he first performed it. If he checks his own work it is not unlikely that he will pass by an error that he has previously made.

22. *How to check.*—The simplest method of checking is to review the entries, comparing the postings with the original records. To show how far the work has progressed, and to allow for interruptions, it is customary to place a check mark ($\surd$) opposite each item that is correct. These marks should be small in order that the check mark of one item may not extend to the next item and thus give the false impression that both have been checked.

After the checking is completed, any unchecked item is a danger signal and must be investigated. If an item has been posted to the wrong account, the fact will be discovered at the time of checking; the

correct posting must then be made and checked off. After that, the incorrect posting or postings will stand out as unchecked items.

It is seldom advisable to have two persons work together to do the checking. The clerk who calls off the entries will not be so busy as the other; consequently his mind may wander and he may frequently overlook an error. Then, too, it is more economical to have two clerks work independently, since they can accomplish more than two clerks working together.

23. *Reconstructions of posting media.* — This method is sometimes varied by reconstructing the books of original entry from the data contained in the ledger. In other words, the postings for the month in the ledgers are segregated and classified according to their sources. This is sometimes known as the process of reverse posting. A sheet somewhat similar in form to the following is constructed from the debits and credits in the ledger.

Let it be supposed that the debits are normally received from the cash book, the sales books, the purchase book and the journal. A debit column and a credit column will be provided, then, for each of these books. Beginning with the first account in the ledger, all transactions for the month will be transferred individually to their respective columns on the reverse-posting sheet. Only the amounts need be entered on the sheets. When, at the end of the first day, the postings have been transferred to this sheet, the totals for each column should equal the total of the

Reverse-Posting Sheet

Debits _____ 191__ Credits

CASH	PURCHASES	SALES	JOURNAL	CASH	PURCHASES	SALES	JOURNAL

books from which they have been taken, and the total of the debits should equal the total of the credits. If this equilibrium does not exist, the error must lie in one or more of these columns.

By a comparison of the total of each column with those of the books in which the item originated, the particular book in which the error occurred can soon be found. It is then necessary to go thru that book and locate the error. The first step is to look for one item, the amount of which is the same as that of the item that is being checked. If the error cannot be found in this way it is probable that the item is composed of two separate amounts, and the book must be rechecked until the error is located.

Such a check may be made at the end of each day, in order to verify the transactions of that day; or it may be carried on continuously during the month, in which case the totals would be brought forward every day. The latter method would serve to prove the additions in the books of original entry. If the reverse-posting sheet is not continually used, it will frequently be found an aid in locating an error that has been disclosed by the trial balance. For such a purpose it would be prepared at the end of the month for the entire month's transactions.

24. *Routine; reverse-posting methods.*—The question may arise, When should the reverse-posting sheet be filled out—at the time of posting, or separately at some other time? It is, naturally, easier to make the postings to the ledger account first, and then, while the ledger is open, to transfer this amount again to the reverse-posting sheet.

As a matter of fact, the value of the reverse-posting process is due to the fact that the contents of the reverse-posting sheet are a transcript of the ledger. It is possible, if the transfer is made at the time the account in the ledger is posted, that the clerk, even if he had the correct figures fresh in his mind, might make the entry on his reverse-posting sheet directly from the book of original entry, and yet make an incorrect posting in his ledger. It is far better to reconstruct the ledger-posting sheet separately, and after the ledgers are posted.

There are two methods, either of which may be used. One is to examine every transaction in every account recorded in the ledger, and to select those that are entered under the dates being checked. The second is to leave at the time of posting some indication by means of which the accounts affected may be located readily at any later time. This latter method makes it possible to compile the reverse-posting sheet by referring only to those accounts that have been indicated, as suggested above. This method is perhaps especially to be preferred when there are many ledger accounts. It must be admitted that the first plan insures greater accuracy, since it will insure the elimination of such errors as posting the same item to two different accounts.

The second plan is the one more frequently used. Sometimes strips of paper are inserted in the proper places at any accounts to which postings have been made. When the reverse-posting is made, it is necessary only to refer to the accounts indicated by the slips of paper. Or sometimes different colored strips of paper are used to mark these places—for example, red strips for debits, and white strips for credits. Either method is dangerous, because the position or the color of the strip is liable to have a suggestive effect on the bookkeeper, and to lead him to correct his error when he makes the transfer, instead of leaving it to the checker to verify the entire transaction. If a card ledger is used, it is possible to segregate

the cards to which the postings have been made and keep them separate until the reverse check has been corrected.

25. *Variation of these methods.*—Still another reverse-posting method, one that insures even greater accuracy, is the following: The name of the account is entered on the sheet at the time of posting, and the checker is required to fill in the amount opposite the name; he must also indicate in the proper column the book from which the posting was originally made. It is even advisable for the poster to enter only a part of the name, together with the page number of the book of preparatory entry. The checker will complete the name and indicate the amount as previously explained. This insures posting to the correct account as well as posting the correct amount.

26. *Current check.*—A method has been devised whereby the trial balance itself is made almost self-proving. Some form of checking is essential to accurate bookkeeping, and the following method makes it combine the checking with the current work of entering the books and proving them.

The ledgers are posted according to the ordinary method, no subsequent check being made of the individual postings in the ledger, and on separate proof-sheets accounts are constructed all accounts in the ledger. If only the page number of the book of original entry and the amount are entered here, very little space will be taken up for each account. This posting to separate sheets, where as many as one hun-

dred accounts are grouped under the eye at one time, can be done very quickly. In fact, it has been found that the separate accounts can be posted in a shorter time than would be required for a complete checking of the individual postings to the ledger accounts in the ledger. On another sheet the trial balance is prepared, in a form somewhat like the following:

Trial Balance

_____Company

_____191_

ACCOUNTS	BALANCE 1ST OF MONTH		MONTHLY DEBITS ON CREDITS		BALANCE END OF MONTH	
	DR.	CR.	DR.	CR.	DR.	CR.

The two columns on the left contain the balance in the account at the beginning of the month. The two columns in the center are provided for the total debits and the total credits of the month. These items are obtained from the ledger accounts that were constructed on the proof-sheets. Thus, it will be noted, the proof-sheet itself contains only a summary for

the month of every debit and every credit to each account.

When these monthly totals have been transferred to the trial balance, the balance at the end of the month is obtained by adding or subtracting the net change for the month to the balance at the beginning of the month. If this addition is correct, the page totals should present an equal state of balance. The net debit or the net credit at the beginning of the month, plus or minus the net debit or the net credit during the month, equals the net credit or the net debit at the end of the month.

After all the monthly figures have been transferred to the trial balance, and the new balances at the end of the month have been computed, first the monthly figures may be added, and then the total balance figures. Of course, if the monthly figures agree—that is, if the debits equal the credits—there is the basis for a correct trial balance. In order to present a complete trial balance, it is necessary only to make the extensions to the new balance columns. It is possible, however, that errors have been made which do not appear in the trial balance, such as postings to the wrong accounts and similar mistakes.

In order to verify the ledger accounts and eliminate any such errors, the balance of each account in the ledger is next computed; it is then indicated in the balance column of the ledger account. The balances, as shown by the trial balance, are then checked against the balance in each ledger account. There is very

little chance that an error will be made in the trial balance by one clerk, and repeated by another in posting to the ledger. If the new balances agree, it is reasonably certain that all postings are correct, not only as to amounts, but also as to accounts. Of course if the postings do not agree, they must be verified and the proper correction must be made either in the trial balance or in the ledger accounts.

27. *Locating an error.*—If the trial balance does not balance before it is checked against the ledger, it is extremely probable that the error will have been located by the time the ledger has been checked. In any event, it is not very difficult to locate an error if it does exist. The trial balance shows total debits and total credits for the month. It is not probable that the error is due to an incorrect posting; it is more likely that it is a result of incorrect addition in a book of original entry. By totaling all the debits and all the credits of each book, they may be quickly checked against the monthly totals in the trial balance. This process will locate the error either on one side or on the other. Then it only remains to prove the side on which the error occurred, by checking the additions in the books of original entry.

28. *Tabulation of ledger.*—The reverse-posting sheet and the special form of trial balance, previously discussed, are sometimes used in the tabulation of the ledger at the end of the month solely for the purpose of locating any errors that have been previously

committed. The monthly figures are separated according to books of original entry from which they come, so that they may be checked in total against those books. The following is a form of tabulation sheet; the cash book, the sales book, the journal and the purchase book are the books of preparatory entry.

TABULATION SHEET

	1	2	3	4	5	6	7	8	9	10
ACCOUNTS	OLD BALANCE		DEBITS FROM			CREDITS FROM			NEW BALANCE	
	DR.	CR.	CASH	SALES	JOURNAL	CASH	SALES	JOURNAL	DR.	CR.

This form not only classifies the postings in the ledger according to the books from which they are obtained, but it also proves the accuracy of the balances that have been derived for each account. It will be noted that this sheet is prepared from the ledger accounts, and not from the books of original entry. After the entire ledger has been tabulated in this manner, it is possible to prove; first, the total debits to

the cash book, the sales book and the journal, and secondly, the new debit or credit balance that will be checked against the figures in the trial balance.

The total of the cash column on the debit page will be checked against the cash-book debit page. In the same way, the tabulation itself may be proved by showing that the totals of columns 1 and 2, 3 and 6, 4 and 7, 5 and 8, 9 and 10, are respectively equal. In proving the cash column, we must, of course, insert the cash balances at the beginning and at the end of the month. If it is not desirable to take the total amounts posted to a particular account from a single book, and enter that total in the tabulation, each separate item may be listed under the proper account name on the tabulation sheet.

REVIEW

What are the main purposes of labor saving devices? Can they be distinguished from standard practice?

Describe the application of the loose-leaf system of ledger accounts and state its advantages and disadvantages.

How do card systems compare with loose-leaf systems?

How does the use of tickets facilitate the preparation of the books?

Describe the operations of the combined sales and billing book.

What is a voucher register system and what purposes does it serve?

Describe the Boston ledger. When is its use advantageous?

Explain the process of reconstructing posting media, and the different methods of using the reverse-posting sheet.

Describe the method of tabulating the ledger for the detection of errors.

CHAPTER XVI

INTERNAL CHECK

1. *Internal check.*—One of the purposes of an accounting system is to insure and encourage honesty upon the part of every employe. This can be done best by minimizing the opportunities for dishonesty, and by placing such a check upon the work of every man as to make it practically certain that any dishonesty will be detected immediately.

The very fact that detailed accounts are regularly kept tends strongly to deter the employe who otherwise would be tempted to misappropriate his employer's funds and goods. Yet embezzlements and thefts frequently occur even when seemingly good accounting systems are in constant operation. Evidently something more than the mere keeping of accounts is needed. The accounting system and the entire business organization must be of such a kind as to render misappropriation well-nigh impossible.

2. *Accounting control; check on stationery.*—This accounting control takes several forms. One is that which has to do with the printing of the forms that are used. For instance, the passenger tickets issued to each ticket agent in main offices of a railroad company are numbered consecutively in series, one series

for each station to which the agent may sell tickets and for each class of passenger service. These are charged to the agent by series and numbers, and he must account in his reports, by means of the tickets that the train conductors send in to the accounting offices, for every ticket that is issued to him. In other words, he must be able to show either tickets or money.

3. *Accounting control; joint responsibility.*—Another method of establishing accounting control is by so dividing the duties of the business organization that a fraud could not be committed and successfully concealed unless there were collusion among several persons. If this system is not adopted the same person may sell goods, receive the money, and make the record in the accounts. Under such circumstances it would be easy for him to make a sale, make no record of it, and put the money in his pocket.

If a system can be established whereby one person makes the sale and is compelled by the customer to record it correctly, a second takes the money, and a third records the cash received by this second person, collusion among at least three persons would be necessary if a fraud were to be concealed. The department store method is to provide a receipt, a delivery ticket, an office copy and a cashier's coupon. The first three must be made out simultaneously by the salesman; they must then be transmitted to the departmental petty cashier, who must stamp and return them. One is given to the customer, one is deposited in a locked box for the use of the accounting depart-

ment, and one goes to the shipping room with the goods. The cashier's coupon enables the petty cashier to check her own record.

Again, in connection with credit sales, if the same person ships the goods, keeps the sales book, receives the money and makes the cash record, he may refrain from recording a sales invoice, and when the customer's check arrives, fail to enter it among the cash receipts, forge the indorsement on the check, cash it and appropriate the proceeds.

If the various functions are so separated that one person makes the shipping record, another fills out the invoice, a third records the invoice, a fourth receives the check and records it, and a fifth goes each day to the bank and deposits all such receipts bringing back an initialed deposit ticket on which each check is shown separately, the opportunity to hold out checks without discovery is very greatly diminished. To require a daily deposit of all cash receipts, and a comparison from time to time of the daily cash book entries with the initialed duplicate deposit tickets, or better still, with the originals obtained from the bank, is an effective preventive of the holding out of payments.

4. *Example of a check that did not check.*—In a case which came recently to the writer's notice, a music conservatory which had an affiliation with a certain college, gave music lessons to many of the college students. The conservatory officials made the charge-slips out in triplicate, kept one, and *gave two*

to the student, one of which was to be presented by him at the college registrar's office, as evidence of the amount of money he was to pay. Many of the students failed to present this slip, and did not pay their music tuition. The copies of the charge-slips should have been sent directly to the college officers instead of being intrusted to the students.

5. *Accounting for stock.*—A stock-room system which provides that one person shall both purchase materials and give out supplies, furnishes an easy means of misappropriation of valuable material. The best safeguard is to allow only the purchasing agent to do the purchasing, and to have it understood that he must obtain requisitions approved by some one in authority; the stock clerk should be held strictly responsible for the supplies that are given out, and should honor only requisitions that are certified by the proper official.

Each requisition should be initialed by the person who receives the material, and the consumption of such material should also be accounted for in like manner, in order that there may be a complete check at all times on the transfers of material, and a very strong discouragement of any tendency that there may be to misappropriate. This system also enables the management to have materials on hand when they are needed, since it provides for a check on the amount consumed and for the filing of requisitions at a sufficiently early date.

6. *Imprest cash fund.*—The imprest cash system

of managing petty cash largely eliminates the small thefts that occur in the handling of small disbursements and in change-making. The purpose of this system is to prevent the petty cashier from receiving money from any one except the main cashier. He starts with the same amount of money in his cash drawer at the beginning of each accounting period, and is required to report at the end of the period. He classifies his expenditures by purposes (accounts affected), shows a receipt for each expenditure, and accounts for the remainder of his funds by showing the money itself.

The proof having been made, the chief cashier copies the report on the stub of a check, and gives the petty cashier a check for the exact amount of his disbursements, thus restoring his fund to the original amount; then, in recording the check in the cash book, he debits directly the accounts that will be affected.

A variation of this idea is applied to the duties of the department petty cashier in a store; the method has been referred to above. Only in this latter case, the petty cashier merely receives money and checks and makes change. He begins operations with a given amount of change, a memorandum of which is made in triplicate. One copy is kept by the chief cashier as a receipt for the money, one copy is given the petty cashier to assist him in his proof, and the third goes to the accounting department.

The petty cashier tears off a cash coupon from each sales ticket and keeps it, the original goes to the ac-

counting department. If the petty cashier turns any money over to any other functionary before his final accounting is done, he takes a receipt, which is made in triplicate; one copy is retained by the recipient of the money, one copy is kept by the petty cashier himself, and one copy is sent to the accounting department.

In making his own proof, the petty cashier enters on one side a memorandum of the cash which he had at the beginning, and memoranda of any cash he may have received during the day, as well as a list of the cash coupons from the sales tickets. On the other side he lists the receipts that he has taken for money turned over to other employes, and the amount of money which he finds left in his possession. The totals of the two lists must agree.

In the accounting department a similar proof is made from the cash-sales tickets bearing the petty cashier's number and from the copies of the receipts described above. The important point in connection with the latter proof, which is the controlling one, is that the information comes from persons who have no incentive to give other than correct information.

REVIEW

What are the common checks against dishonesty on the part of employes?

What precautions are advisable in handling materials and supplies?

Describe systems in use to control expenditure of petty cash.

CHAPTER XVII

COMPOUND INTEREST PROCESSES AND THEIR USE IN BUSINESS

1. *Definition of terms.*—The compound interest processes are used in many ways in business. A knowledge of them is especially necessary in dealing with the valuation of bonds, the apportionment of bond discounts and bond premiums, and in the discussion of the theory of depreciation.

The amount of interest depends upon the "principal," the "time" and the "rate." The principal is always a present quantity of money or money's worth which is lent and upon the basis of which interest is earned. The time during which interest is earned is always expressed as a number of time-units. The whole duration of a debt may be taken as a time-unit, for which a rate of interest may be expressed. But the time-units most commonly used are the year, the half-year, the quarter and the month.

The rate of interest always applies to a definite time-unit. The rate may be defined as the relative amount, as compared to the principal, by which the obligation of the debtor increases in the time-unit. Six per cent per annum means that the amount of interest earned during one year is six-hundredths of

the principal, or six cents out of every dollar. Six per cent per annum payable semi-annually means that the time unit is the half-year, and that the interest earned during the half-year is three-hundredths of the principal.

2. *Simple and compound interest defined.*—Interest may accrue by simple interest or compound interest. Simple interest does not accrue on other unpaid interest that is past due. According to the compound interest theory, any interest due but unpaid becomes a new principal upon which interest accrues. Simple interest is used in the case of most short time debts. Compound interest, or the allowance of interest on unpaid interest, is illegal in most jurisdictions.

3. *Rate of increase.*—Since the time-unit is not always the year, the term "time-unit" or "period" will be used in the following discussion, the whole time being referred to as "the number of periods." If the rate of interest is 5 per cent, the interest on \$1 for one period is 5 cents and the "amount" of \$1 for one period is \$1.05. Evidently the amount of \$1,000 for one period is one thousand times as great. The arithmetical operation may be written:

$$1{,}000 \times \$1.05 = \$1{,}050$$

or

$$\$1{,}000 \times 1.05 = \$1{,}050$$

Evidently the quantity, 1.05, may be regarded as a ratio of increase per period, i.e., at 5 per cent any

principal increases so that at the end of one period it is 1.05 times as great as it was at the beginning.[1]

4. *Rule for finding the amount of any principal.*— If the amount of interest mentioned above, namely, $50 is not paid at the end of the first interest period, it would, at compound interest, be added to the original principal and the whole amount, $1,050 becomes a new principal for the second period. If the interest was paid, we may assume that the recipient could invest it at 5 per cent, or make some other disposition of it just as good, so that the whole principal for the second period is $1,050, any way. This increases in the ratio 1.05 during the second period so that the amount at the end of the second period is

$$\$1{,}050 \times 1.05 = \$1{,}102.50$$

But since $1,050 equals $1,000 × 1.05, we may write the amount at the end of the second period thus:

$$\$1{,}102.50 = \$1{,}000 \times 1.05 \times 1.05 = \$1{,}000 \times 1.05^{2}.$$

It is evident that the amount of any principal may be found by multiplying by the ratio of increase as many times as there are periods. Hence, the following rule:

To find the amount of any principal for any number of periods, use the ratio of increase as a multiplier of this principal as many times as there are periods.

The above rule may be expressed by a formula as follows: $A = P \times (1 + i)^{n} \ldots\ldots\ldots (I)$

In this formula, P stands for any principal, i

[1] cf. Sprague and Perrine "Accountancy of Investment," p. 29.

stands for the rate of interest expressed as a decimal fraction, n the number of periods included in the whole time and A the amount of principal and compound interest at the end of these n periods. Here the ratio of increase for one period is $1 + i$, which is also the amount of \$1 for one period at the rate i. Of course, in any concrete case, the numerical values of P, i and n are supposed to be known, and from these the value of A can be computed. Thus if, in a particular case, P, is \$500, n is 10 years, and i is 6 per cent or .06 per annum, then A, which stands for the amount at the end of ten years, is given by the equation, $A = \$500 \times 1.06^{10}$, from which, by multiplying out the right side, we ascertain that A has the numerical value of \$895.42.

Calculations for the amounts of \$1 at rates of interest in general use for any number of years or periods may be found in published tables known as compound interest tables.

5. *Present worth.*—The converse of finding the amount of a given principal at compound interest is to find the "present worth" or "present value" of a sum of money payable at a future date, interest being taken into consideration.

The present worth at compound interest at any given rate of any given sum payable at any given future date may be defined as that present principal which invested at the given rate and accumulated at compound interest will amount to the given sum at the given future date.

Thus, to make use of foregoing illustrations, the present worth, at 5 per cent compound interest, of $1,102.50 receivable at the end of two periods is $1,000, because $1,000 invested at 5 per cent compound interest will amount to $1,102.50 in two periods.

This is evident because, since

$$\$1{,}000 \times 1.05^{2} = \$1{,}102.50,$$
$$\$1{,}000 = \$1{,}102.50 \div 1.05^{2};$$

and since

$$\$1{,}000 \times 1.05 = \$1{,}050,$$
$$\$1{,}000 = \$1{,}050 \div 1.05;$$

and since

$$\$500 \times 1.06^{10} = \$895.42,$$
$$\$500 = \$895.42 \div 1.06^{10}.$$

6. *Rule and formula for finding the present worth.* —In the above cases $1,102.50, $1,050 and $895.42 are quantities of money receivable at future dates, while $1,000, $1,000 and $500 are their respective present worths at the rate named. The divisor in each case is the ratio of increase used as many times as there are periods in the whole time or the amount of $1 at the given rate for the given time. These three pairs of equations express the following general principle:

The present worth is obtained by dividing the given sum by the amount of $1 at the given rate for the given time, or by multiplying the given sum by the present worth of $1 at the given rate for the given time.

A formula for computing present worth may be obtained from Formula I by solving for P, as follows:

$$P = \frac{A}{(1+i)^n} \text{ or } A \times \frac{1}{(1+i)^n} \ldots\ldots\ldots (II)$$

Since $(1+i)^n$ represents the amount of \$1 at rate i for n periods, the fraction $\frac{1}{(1+i)^n}$ stands for the present worth at the rate i of \$1 payable at the end of n periods. Hence the second part of the rule. In practice, a tremendous amount of labor can be saved by using published present worth tables in which are computed the present worths of \$1 for various lengths of time at various common rates of interest.

7. *Annuities defined and differentiated.*—An annuity is a series of equal sums of money payable or receivable at equal intervals of time. A life annuity is an annuity, the number of payments of which depends upon the continuance of a designated person's life. This is distinguished from an annuity certain, the number of whose periods is definitely fixed. Thus, if a man were to buy the right to receive \$1,000 at the end of each year for ten years, he would have purchased an annuity certain. The chief arithmetical problems connected with an annuity certain are the computation of its present worth and the computation of its amount at compound interest at the end of the annuity period.

8. *The amount of an annuity.*—Consider an annuity consisting of five instalments of \$100 each, none

of which have yet been paid, and let us find its amount at 5 per cent compound interest on the date of the last instalment. The first instalment, coming at the end of the first period may be considered as a single principal which accumulates at 5 per cent compound interest for the remaining four periods. It would amount to $\$100 \times 1.05^4$. The second, accumulating during three periods, would amount to $\$100 \times 1.05^3$; the third to $\$100 \times 1.05^2$; the fourth to $\$100 \times 1.05^1$; the fifth to just \$100. Therefore, designating the amount of the whole annuity by "A," we have

$$A = \$100 \times 1.05^4 + \$1.00 \times 1.05^3 + \$100 \times 1.05^2 + \$1.00 \times 1.05^1 + \$100 \ldots \text{(a)}$$

$$\text{or } A\ \$100\ (1.05^4 + 1.05^3 + 1.05^2 + 1.05^1 + 1) \text{ (b)}$$

The quantities inside the parentheses represent respectively the amount of \$1 for four periods, for three periods, two periods, one period and zero time. Read in reverse order, they represent the successive quantities in a 5 per cent compound interest table. Also, together, they constitute the amount at 5 per cent of a five-period annuity of \$1. Had the annuity been one of fifty instalments instead of five, there would have been fifty of these quantities in the parentheses, the largest of which, 1.05^{49}, would have represented the amount of \$1 for forty-nine periods.

Equation "b" generalized, therefore, expresses the fact that the amount at any rate of interest on the date of the last instalment of an annuity of any number of instalments is the sum of that number of terms

commencing with unity in a compound interest table at that rate, multiplied by the number of dollars constituting one instalment. In other words, it is equal to the amount of an annuity of $1 for the required time and rate multiplied by the amount of one instalment.

9. *The rent of an annuity.*—The "rent" of an annuity is the amount of money that constitutes one instalment. The problem simmers down to finding the amount of an annuity of $1. Accordingly, it is desirable to find quick methods for this process. We may express the amounts at 5 per cent compound interest of the successive instalments of a five-period annuity of $1 and of $1.05 in columnar form as follows:

Instalment Payable at end of	Amount of Annuity of $1	Amount of Annuity of $1.05
1 period	$1.05^4	$1.05^5
2 periods	$1.05^3	$1.05^4
3 periods	$1.05^2	$1.05^3
4 periods	$1.05^1	$1.05^2
5 periods	1.	1.05

If, now, the second column be subtracted from the third, the remainder will represent an annuity of five cents. Before subtracting, like terms in each column may be stricken out; this will leave only the first term of the second and the last term of the first.

Therefore, the amount at 5 per cent compound interest of a five-period annuity of $0.05 equals $1.05^5 - $1. Had this been a fifty-period annuity of $0.05 its amount would have been $1.05^{50} - 1$. The exponent of 1.05 is the same as the number of periods.

If the amount of a five-period annuity of \$0.05 is $\$(1.05^5 - 1)$ evidently,

The amount of a 5-period annuity of

$$\$1 = \frac{1.05^5 - 1}{.05} \text{—(c)}$$

and

The amount of a 50-period annuity of

$$\$1 = \frac{1.05^{50} - 1}{.05} \text{—(d)}$$

The numerator in each case is the compound interest on \$1 at the required rate for the duration of the annuity. The denominator is the rate of interest expressed as a decimal fraction.

10. *Formula for finding the amount of an annuity.* —To generalize, if R stands for the rent of an annuity certain of n instalments payable at the ends of the successive periods, i for the rate of interest per period expressed decimally and A for the amount of the annuity on the date of the last or nth instalment, then,

$$A = R \times \frac{(1+i)^n - 1}{i} \text{.....(III)}$$

11. *Present worth of an annuity.*—The present worth of an annuity is that sum of money which, at a given rate of compound interest will equal the annuity. Evidently the present worth of an annuity is equal to the sum of the present worths of the instalments which compose it.

12. *Rule and formula for finding the present worth*

of an annuity.—If P stands for the present worth of an annuity, then by applying Formula II to A of Formula III, we have

$$P = \frac{A}{(1+i)^n} \quad \text{.....(IV)}$$

or

$$P = R\frac{(1+i)^n - 1}{i(1+i)^n} \quad \text{.....(V)}$$

or, by dividing the $(1+i)^n$ of the denominator into each term of the numerator, but leaving the factor i in the denominator, we have

$$P = R \times \frac{1 - \frac{1}{(1+i)^n}}{i} \quad \text{.....(VI)}$$

Formula V enables us to use an ordinary compound interest table in computing the present worth of an annuity $(1+i)^n$ representing the amount of $1 at i rate of interest for n periods.

Formula VI enables us to use an ordinary present worth table. The fraction $\frac{1}{(1+i)^n}$ represents the present worth of a single sum of $1 at i rate of interest for n periods; $1 - \frac{1}{(1+i)^n}$ represents the compound discount on the dollar. The whole formula tells us that to find the present worth of an annuity divide the compound discount on $1 for the duration of the annuity by the rate of interest expressed decimally and multiply the quotient by the rent of the annuity.

Thus, the present worth of an annuity of $100 a year for ten years at 5 per cent is $\$100 \times \frac{1.05^{10} - 1}{.05 \times 1.05^{10}}$ ac-

cording to Formula V and is $\$100 \times \frac{1-\frac{1}{1.05^{10}}}{.05}$ by Formula VI. From a compound interest table we find that 1.05^{10} is \$1.62889463; and from a 5 per cent present worth table we find that $\frac{1}{1.05^{10}}$ is \$0.61391325. Substituting the one in the first expression and the other in the second, we have $\$100 \times \frac{1.62889463-1}{.05 \times 1.62889463}$ or $\$100 \times \frac{1-0.61391325}{.05}$ either of which gives \$772.17 + as the required present worth.

13. *Valuation of annuities certain.*—Let us consider an annuity of \$100 per year for five years, the instalment being receivable at the end of each year. It would seem, under this contract, that the amount of \$500 is to be received or paid and in an important sense this is true. But the time of payment is not the present time, but one, two, three, four and five years in the future; hence one will not pay \$500 now for the entire right. Let us find the present worth, on the date of purchase, of the above mentioned annuity at 5 per cent compound interest. Applying Formula VI as stated above, we find the value as follows:

$$P = \$100 \times \frac{1-\frac{1}{(1.05)^5}}{.05} = \$100 \times \frac{1-0.78352617}{.05} = \$432.94$$

If this annuity is bought now for \$432.94, it is bought on a 5 per cent basis, i.e., at such a price that the net income is equivalent to 5 per cent per annum on the investment. Evidently the total income will be \$500, the cost of which is \$432.92, so that the net

income contained in the five instalments is $67.06. The problems are, first, to see how this is equivalent to 5 per cent on the investment, and second, to find what portion of the successive instalments represents returning principal, investment or capital and what portion is net income or interest.

The fundamentals of these problems can be best understood if the original present worth computation is made piecemeal. Let us therefore find the present worth on the initial date of each prospective instalment separately. The results may be summed up as follows:

	1st	2nd	3rd	4th	5th	Total
The instalment	$100	$100	$100	$100	$100	$100
Present worth	95.24	90.70	86.38	82.27	78.35	432.94
Excess of instalment over present worth	$ 4.76	$ 9.30	$ 13.62	$ 17.73	$ 21.65	$ 67.06

We might reason, therefore, that in paying $432.94 for this annuity, we paid $95.24 for the first instalment of $100, $90.70 for the second, $86.38 for the third, and so on. We might reason further that when we collect the first $100, $95.24 of our initial capital had completed its turnover and had been turned into $100—at a profit of $4.76. Therefore, we might resolve this $100 into two parts, namely, $95.24 of returning investment or initial capital and $4.76 of net income or interest. In like manner, each of the subsequent $100 payments might be separated as between initial capital and net income.

14. *Result of this method of accounting.*—By this

method of accounting, the net income of the first year is only $4.76, which is 5 per cent, not of the entire original investment but of the $95.24 which we represent as the cost of the first instalment. Similarly, the net income of the second year is represented as only $9.20 which is 5 per cent neither of the entire original investment nor of the $327.70 of investment remaining after $95.24 is returned in the first instalment, nor of $90.70 the original cost of this second instalment, but is $10.25 per cent of this cost, which percentage is the two-year compound interest equivalent of 5 per cent per annum. The net income of the remaining years will be worked out in like manner.

Briefly, then, this method of accounting does not represent the whole investment as earning 5 per cent net each year, in fact, only the first instalment does this; but the net income contained in each instalment is represented as the compound interest equivalent of 5 per cent per annum of the cost of the instalment.

15. *Basis of accounting for profits.*—The basis of accounting for profits in the foregoing is realization by collecting the promised income. The valuation of the unpaid portion of the annuity on any annuity date would be the cost of the uncollected instalments—$337.70 at the end of the first year, $247.00 at the end of the second year, and so on.

The net income of $21.65 contained in the final instalment of $100 pertains to the whole five years during which the annuity has run, altho this net income is not realized until the final instalment is col-

lected; similarly, the $17.73 realized when the fourth instalment is collected pertains to the whole four years. Therefore each net income is distributable to the years involved in earning it.

16. *The basis of distribution.*—In this case, distribution of net income is not made according to the rules of simple interest, which would give an equal division, but according to the method of compound interest. To illustrate, the fifth instalment cost $78.35 which is the present worth of $100 discounted at 5 per cent compound interest for five years. Five per cent of $78.35 is $3.92, which is earned on this part of the investment during the first year, altho not collected until the end of the fifth. Since it is not collected at the end of the first year, this $3.92 as well as the original $78.35, or $82.27 in all, earns interest during the second year.

This $82.27 should not be confused with the $82.27 which was represented as the cost of the fourth instalment; we are here dealing only with the fifth instalment. Indeed in a certain sense we may say that the investment in the fifth instalment has increased to $82.27. For in an ordinary debt subject to compound interest, the interest earned during any year would be payable at the end of that year and if not paid would be added by contract to the previous debt.

Or, to put it in another way, we may say that of the $100 receivable at the end of the fifth year, $78.35 was earned on the initial date (because $78.35 was paid to the company), $82.27 of it is earned by the

end of the first year, and as will appear below, $86.38 is earned by the end of the second year, $90.70 by the end of the third, and $95.24 at the end of the fourth year and the entire $100 by the end of the fifth year.

Five per cent of $82.27 is $4.11, the amount earned during the second year. Since this also is not yet collected, the amount earning interest during the third year is $86.38, the interest earned on which is $4.32. This brings the total amount earning interest during the fourth year up to $90.70, the interest on which is $4.54. Thus the amount earning interest during the fifth year, so far as this fifth instalment is concerned, is $95.24, the interest on which is $4.76.

17. *Illustration of distribution of interest.*—Thus the $21.65 of net income is distributed when the fifth $100 has been collected—$3.92 to the first year, $4.11 to the second year, until finally $4.76 is distributed to the fifth or the year in which it is realized. We may tabulate these results as follows:

Instalment	Total Net Income Realized	Distribution to 1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
1st	$ 4.76	$ 4.76	.....	.....	.....	.....
2nd	9.30	4.54	$ 4.76	.....	.....	.....
3rd	13.62	4.32	4.54	$ 4.76	.....	.....
4th	17.73	4.11	4.32	4.54	$ 4.76	.....
5th	21.65	3.92	4.11	4.32	4.54	$ 4.76
Total Earned	$67.06	$21.65	$17.73	$13.62	$ 9.30	$ 4.76

From the foregoing it will be seen that altho the net income realized the first year is only $4.76, the amount represented as earned is $21.65; and altho the amount realized the last year is $21.65, the amount

represented as earned is only $4.76. Indeed in this case, in which all the instalments were equal, the amounts represented as earned during the successive years exactly reverse the order of the amounts represented as realized.

18. *Illustration of the valuation of the various instalments on successive instalment dates.*—The justification for departing from realization and taking earning as the basis of accounting in this case lies in the fact that the prospective future income, represented in these $100 instalments, is definitely promised by contract. The basis of valuation of contractually promised income is not cost but realizability, adjusted with reference to the time of realization.

In accordance with this principle the valuations of the various instalments on the successive instalment dates may be tabulated as follows:

Instalment		Valuation on date of				
No.	Amount	Initial	1st inst.	2nd inst.	3rd inst.	4th inst.	
1st	$100	$ 95.24	(100.00)	.....	.....	.....	.....
2nd	100	90.70	$ 95.24	(100.00)	.....	.....	.....
3rd	100	86.38	90.70	$ 95.24	(100.00)	.....	.....
4th	100	82.27	86.38	90.70	$ 95.24	(100.00)	.....
5th	100	78.35	82.27	86.38	90.70	$ 95.24	(100.00)
Total	$500	$432.94	$354.59	$272.32	$185.94	$ 95.24	0
Shrinkage			78.35	82.27	86.38	90.70	95.24

Thus, considering this table in connection with the one preceding, the net income earned during the first year is $21.65, which is 5 per cent of the investment of $432.94. But $100 is collected. Therefore we treat the remaining $78.35 as returning investment or net shrinkage in the investment in the annuity. The

net income earned during the second year is $17.73, which is 5 per cent, not of the original investment, but of the unreturned investment of $354.59. Obviously, if we wish to earn interest at any rate on the $78.35, we shall have to invest it. But we collect $100; hence, the remaining $82.27 is treated as returned investment or net shrinkage in the investment in this annuity. Once more the $13.62 earned during the third year is 5 per cent of the $272.32 remaining at the beginning of that year. This method represents the net income as amounting to 5 per cent of the investment each year.

REVIEW

What is compound interest and in what connections is it important for the accountant?

State the rules for finding the amount of any sum at compound interest and present worth of a sum paid in the future.

How are compound interest and present worth tables constructed and how do they facilitate calculations?

What is an annuity certain, and how is its present worth calculated?

How are such annuities valued?

CHAPTER XVIII

DEPRECIATION

1. *The depreciation problem analyzed.*—Depreciation is a phenomenon that attaches to durable physical assets like buildings and machinery and to intangible assets like franchises and patent rights. It is that part of the original outlay on fixed or circulating assets which has disappeared, either thru wear or tear, lapse of time or obsolescence.

When a person buys a physical asset he purchases it for the purpose of obtaining the service that such an instrument is capable of rendering. If $1,200 is paid for an auto truck, in reality the payment is made for future auto truck service.

As an accounting operation, it is necessary to compile the costs of all services rendered, not only for the sake of the direct information which the compilation will give, but also that the cost may be traced thru to the income that will eventuate—this income will be either a money income, or a pleasure, the cost of which it is desirable to ascertain so that an intelligent decision can be made as to whether it is worth while.

This service is not rendered all at one moment or in one day, but in a more or less continuous stream thru a considerable period of time. It is evident

that the number of service units which an instrument can render is limited. If the service life of an instrument was identical with the fiscal period there would be no depreciation problem because the whole cost of the instrument (barring the instrument's "residual" or "scrap" value) would be the cost of the service received during the period.

If, however, the fiscal or operating period is but a part of this service life, there arises the problem of finding that part of the instrument cost which was the cost of service received during the period in question. This is the depreciation problem, and the part of the instrument cost thus found, is the depreciation of the instrument during the period.

2. *Some popular misconceptions of depreciation.*—Among the most popular misconceptions of depreciation are: (1) that it consists of a decrease in the market value of the depreciable instrument; (2) that it may be identified with the diminishing operation efficiency or productivity of the instrument; (3) that after the accumulated allowances for depreciation amount to thirty or fifty per cent of the original cost of the equipment have been made it is no longer necessary to make allowances for depreciation, because current replacements maintain the average investment in the aggregate equipment at about a fixed amount.

3. *Principle of allocated cost.*—Let us assume the purchase of a certain instrument whose service life will be exactly five years, and whose operating efficiency will be maintained uniformly until the end of

the fifth year, when it will drop to zero. It may be assumed also that this service will be received at the end of each year; that the value of each year's service will be the exact equivalent of $1,000 receivable at the end of the year; and that in computing the present worth of this future service, its estimated value would be discounted at 15 per cent per annum. In this hypothetical case the problem will be to find the maximum price which would be paid for this instrument. The following table of amounts and present worth of one dollar at 15 per cent per annum will assist in the discussion:

Discount Period	Amount of $1 at 15 per cent	Present worth of $1 at 15 per cent
Beginning	1.000000	1.000000
1st year	1.150000	0.869565
2nd year	1.322500	0.756144
3rd year	1.520875	0.657516
4th year	1.749006	0.571753
5th year	2.011357	0.497177

The present worth of the first year's service, that is the maximum amount which will be paid in advance for it, reckoned at 15 per cent, is $869.56. The present worth for the second year's service, likewise paid in advance, is $756.14, and so on for the succeeding years. The maximum amount that would be paid in advance for the entire five years' service is the sum total of the present worth of those years or $3,352.15.

If the instrument was purchased for $3,352.15 it might be said that its prospective service was bought on a 15 per cent basis; if bought at a lower price the basis would be higher. Its service for the first

year, therefore, would cost $869.56 and that amount is assignable for depreciation for the year. In like manner depreciation charges for successive years would be respectively: $756.14, $657.52, $571.75 and $497.18.

The foregoing example illustrates the principle known as allocated cost. In accordance with this principle, to find any given proportion of instrument service there would first be ascertained that part of the original cost of the whole instrument which was the cost of this given proportion, and assign it as the instrument's depreciation during the period in which this proportion of service was rendered.

The following conclusions may be drawn from the principle of allocated costs: (1) provision for depreciation is not a provision for the replacement of one instrument by another when the former shall be discarded; (2) depreciation is not synonymous with decrease in operating efficiency. It has been shown, in the illustration, that the operating efficiency of an instrument remained at a uniform level, giving the same amount of service each year until the end of the fifth year. Yet, over this period, a large amount of depreciation is found assignable to each year; (3) the immediate cause of depreciation is due to the fact that a part of the total service which the instrument was capable of rendering either has already been given or has been wasted thru idleness or thru some other cause. If a year's service is obtained from an instrument, part of the cost is assignable to the service ren-

dered. Whether or not the machine has been used to maximum efficiency is not a pertinent question in computing depreciation. As great an amount of depreciation is assignable to the period as if the instrument had been operated at maximum efficiency; (4) depreciation does not consist of a decrease in salable value, either of the instrument in question or of another of like design. It will be remembered that in the illustration used to explain the principle of allocated costs nothing was said about salable value. Yet, allowance had to be made for the depreciation of the instrument. Instruments of production are not purchased to be sold but to be installed as integral parts of a going concern. (5) Finally, it should be borne in mind that depreciation is a matter of cost distribution and not a value shrinkage.

4. *Depreciation confused with value shrinkage.*—The idea of depreciation in the minds of many is quite frequently confused with that of value shrinkage, as is evidenced by such statements as the following: "Frequently an asset depreciates more during the first month of its life than in a year thereafter; a machine that had been used a few days could not be sold for anything like its cost." The value shrinkage referred to, however, may be either of two kinds, namely, (1) the decrease in selling value of the instrument; (2) the decrease in present worth taken on the same basis as that on which the original value was determined.

5. *Illustration of value shrinkage thru decrease in selling value.*—When an instrument is bought with

the deliberate intention of using it for two years and then selling it at a reduced price, already determined, which it is judged can be obtained, the estimated shrinkage in selling value may be an acceptable quantity in calculating the whole depreciation to be apportioned. Moreover, the scrap value is always to be taken into consideration. But as has already been pointed out, productive instruments, as a rule, are not purchased for resale but for the service which they are capable of rendering.

6. *Value shrinkage thru decrease in present worth.* —The second kind of shrinkage represents another theory of depreciation that is closely related to the allocated cost theory but contains an added idea. To illustrate, reverting to the case previously cited a new calculation of the present worth of the instrument at the end of each year of its life will be made and its remaining future services discounted on the same basis as originally, namely, 15 per cent per annum. During the first year, returning to the original supposition that each year's service would be received at the end of the year, the present worth of this service computed by the value shrinkage method of depreciation would rise from $869.56 to $1,000. The second year's service being now one year nearer realization, would have a present worth of $869.56 instead of $756.14, as formerly.

Proceeding in the same manner with the other years it is evident that during this first year, the value of the whole instrument would rise to $3,854.97, an increase

of $502.82, or 15 per cent of the original cost of $3,352.15. At the end of the year, because of the receipt of the service whose supposed value is then $1,000, the value of the instrument would abruptly fall by that amount to $2,854.97. The effect of the rise during the year and the fall at the end of the year is a net fall of $497.18.

In a similar manner during the second year the instrument's present worth would rise to $3,283.22, an increase of $428.25, or 15 per cent of its present worth at the beginning of that year, and then abruptly fall $1,000, to $2,383.22. This time the net shrinkage is $571.75, and so on.

The theory just illustrated may be called the value shrinkage theory of depreciation. The reader will observe that it treats this instrument in the same manner in which the annuity certain was treated in Chapter XVII. The advocates of this theory might reason that five years' time was involved in realizing some of the service rendered by this instrument during its fifth year; and, as in the case of the annuity, the profit or loss of the investment therein is not all assignable to the fifth year, but is distributable over the whole period. There is a vital difference, however, between the case of a productive instrument and of an annuity certain. The latter represents a definite amount of money income which has been promised by contract; the former, only the right to the chance of obtaining service, the amount and value of which is entirely conjectural.

One method of measuring depreciation—the annuity method which will be treated later—deals with the problem in just this way. It represents the cost value of the instrument as rising during the year to the extent of a certain chosen percentage of itself (taking account of a profit to the extent of this increase), and then falling to the extent of a constant amount, the latter being called the depreciation.

7. *Fallacy of the interest theory.*—An advocate of the value shrinkage theory may also argue that the cost of the later years' service consists, not only of the original outlay to obtain it, but also interest on this outlay from the time it is made until the service is realized. The consistent application of this argument to the above illustration would actually make the cost of each year's service $1,000. It has already been shown, however, that interest is one of the causes of business profits, and that profits are made only when there is a sale, i.e., when a turnover of capital is in prospect by legal contract, and ascertained only in the money income that is received.

To allow interest on an investment in the assets, therefore, and to count this as an additional cost is to do three things: First, record the same thing both as cost and income—for under the double entry principle, while interest as a cost will be represented by a debit, there will be a corresponding credit also to interest, which credit will be interpreted as a source of income. Secondly, record an income and a profit where there is none. There is no cash received or receivable, cor-

responding to the above credit, and when the manufactured article is sold, the actual cash income in prospect will be represented by another credit to the sales account. Thirdly, record a cost where there is no cash outlay. The theory that profit is earned by a turnover of capital, contemplates actual outlays of cash and actual cash incomes, or their equivalent, not mere entries in books. Therefore, the theory of the allowance of interest as cost and the value shrinkage theory of depreciation are untenable.

8. *Depreciation of intangible assets.*—The cost of intangible assets is incurred because of some advantage supposed to flow from them as the exclusive right to restrict the output and regulate the price of a patented article; the advantage in production that results in excluding competitors from the use of an improved process; the right under a franchise to use the city's streets, and so on. This advantage also extends thru time, and therefore the cost of such rights is apportionable. What has been said about the depreciation of tangible assets applies with suitable modification to intangible assets.

9. *Causes of depreciation.*—The immediate cause of depreciation is the rendering of a portion of the limited service which the article is capable of rendering, or the waste of it thru idleness or other cause. The more remote causes consist of those agencies or causes which make the service life of an asset a limited one, and these may be summed up under five heads: (1) wear; (2) decay thru operation

of natural elements; (3) inadequacy; (4) obsolescence, or the progress of invention; (5) the expiration of title in the asset as in the case of limited franchises, patent rights, copyrights, and the like.

The first three causes of depreciation apply to physical assets, the fourth to both tangible and intangible—a patent right usually becomes obsolete before the expiration of seventeen years because a better patented article supersedes the old one—the fifth cause applies to intangible assets.

10. *Methods of treating depreciation in the accounts.*—The charge for depreciation may be debited to a general depreciation account or to some more specific depreciation account, as "depreciation of buildings," "depreciation of machinery," or to a specific depreciation account as "depreciation of machine A." Specific depreciation accounts lend themselves most readily to functional classification of costs.

The corresponding credit might go to an account with the depreciable assets—the depreciation of a certain machine, for instance, might go to the machinery account, or to the account with a specific machine. This is not regarded as good practice, because (1) it would mix credits for depreciation allowances with credits for sales of such equipment; (2) the allowances are only estimates, and to credit them to the asset accounts may prejudice later valuations in case of disputes; (3) in balancing accounts from time to time, the allowances made are lost sight of; (4) the total allowance to date, being scattered thru other accounts,

does not show in the account. It is therefore considered preferable to carry the credit to a separate reserve account which serves as an offset to the relevant asset account.

The amount allowed for depreciation, as already stated, may be credited to a general depreciation reserve account; to a specified reserve account, as "reserve for the depreciation of buildings," "reserve for the depreciation of machinery," and so on; or to a depreciation reserve account for the specific asset. If a detailed ledger is operated in which there are accounts for each class of depreciable assets, or an account with each individual asset, the allowances for the various classes or individual assets may be entered in a special column provided for them.

11. *Advantage of class depreciation reserve accounts.*—The advantage of having such class depreciation reserve accounts is, that in preparing a balance sheet such accounts can be deducted directly from the relevant asset accounts to obtain for the latter their balance sheet valuation. The advantage of the specific depreciation record is that when an instrument is scrapped, its cost less its scrap value can be compared with the allowance made for its depreciation to see whether the latter has been adequate, and thus a basis may be obtained for future depreciation rates on the same classes of equipment.

12. *Treatment in the accounts at the time of scrapping an asset.*—When the service life of a machine is ended, it ceases to be a machine and becomes mere

scrap material. The correct procedure theoretically is to estimate its scrap value and make the following entries—

Debit scrap material;.
Debit reserve for depreciation of machinery
Credit machinery (at original cost)

If the total reserve made for depreciation of this machine was more than sufficient, or less so, another entry would be made charging or crediting surplus or profits for the discrepancy.

13. *Relation of repairs to depreciation.*—In discussing depreciation the effect of repairs has been ignored. Practically, a machine does not, like the Deacon's one-horse shay, fail in all its parts simultaneously. Certain parts wear out much more rapidly than others, but any part may be replaced, and the machine will continue to render service. There are two views about the effect of such repairs upon the service life of the machine. Some assert that notwithstanding these part replacements, physical deterioration goes on within the machine as a whole until its operating efficiency is so low that the whole machine has to be discarded and a new one substituted. It is difficult to see why this should be true in these times of standardized, interchangeable parts, yet it may hold with some kinds of appliances.

14. *Another view of replacements.*—The other view is that replacement of parts, as they fail, prolongs the service life of the machine at full efficiency indefinitely.

Nevertheless, it must be admitted that obsolescence and inadequacy will eventually send such instruments to the scrap heap.

15. *Handling repair costs in the accounts.*—The customary practice has been to count repair costs as expenses of the period in which the repairs are made. In the case of a large plant with machinery so great in amount that there is a continuous and fairly uniform amount of repairs, this practice may serve the purpose. But in a smaller plant, particularly where repairs vary in cost from year to year, this is not good accounting. To reckon the entire cost of a heavy repair in the expenses of the year or month in which it is made is obviously incorrect. Therefore, the practice of spreading the cost of repairs thru a series of years is generally favored in smaller plants.

16. *Substituting a repairs-reserve account for the depreciation reserve.*—The fact that machines consist of replaceable parts substitutes the parts for the whole machine, so far as depreciation due to wear or physical decay is concerned. Instead of having the whole machine fail and go to the scrap heap, the component parts fail one by one and also go to the scrap heap, but the parts are replaced by new ones. The depreciation of the whole machine consists of the aggregate depreciation of its parts. Therefore, the correct treatment theoretically of depreciation and repairs, where wear or tear or physical decay is the effective cause, is to make periodic debits to specific or class depreciation accounts, as designated above. The rate

will be governed by the estimated rapidity with which various parts will have to be replaced. The credit would then be made, not to a "reserve for depreciation" account, but to a "reserve for repairs" account.

In the general ledger, there would be class reserves as already described, but specific reserves will be kept in the detail ledgers. Then, when a part failed, the cost of a new part, together with the cost of taking out the old part and putting in the new one, should be charged to a "class-repairs" account in the general ledger and the "specific repairs-reserve" account in the detail ledger.

Finally, at the close of the fiscal period, the "class-repairs" accounts should be closed into the "class repairs-reserve" accounts. The adjusted balances of the latter represent the revised offsets to the relevant asset accounts, the service life of which asset has been prolonged by the repairs.

17. *Treatment of obsolescence in the accounts.*— The procedure for repairs just described may also be applied to obsolescence. With regard to this item it is suggested that, at the time of purchasing an instrument of certain design, the life of the design before it becomes obsolete should be estimated. On this basis a supplementary allowance should be made and treated in a manner like that described for the depreciation reserve. At the time of scrapping an instrument the accounting procedure followed would be the same as in the case of depreciation reserves, ex-

cept that the word "obsolescence" is substituted for "depreciation."

If this procedure is observed, the terms repairs reserve and obsolescence reserve would be substituted for depreciation reserve. If the reader does not wish to treat ordinary light repairs in this way, there can be no practical objection to separating all repairs into two classes, namely: (1) light repairs and (2) heavy repairs.

The light repairs may adequately be treated in the ordinary way, counting them as expenses or costs of the period in which such repairs are made. In this event, however, it is strongly recommended that "heavy repairs-reserve" accounts be created and operated in the manner just described.

REVIEW

State the correct and incorrect theories of depreciation.

Describe the theory of allocated cost.

What is meant by value shrinkage and what is the theory of depreciation based upon this principle?

What is the best method of treating depreciation in the accounts?

What course is recommended for the treatment of repairs and obsolescence in the accounts?

CHAPTER XIX

METHODS OF DETERMINING THE AMOUNT OF DEPRECIATION

1. *Sinking-fund method.*—The system of providing for depreciation which is known as the sinking-fund method, derives its name from the fact that the principle employed is the same as that used in building up a sinking fund, altho those who use this method do not contemplate the establishment of an actual fund of cash or securities. A sinking fund is used for the purpose of paying a debt at its maturity. Certain regular instalments of cash are paid at periodic intervals to a trustee who invests the cash in interest-bearing securities; the interest on the investment is collected by the trustee and goes to increase the fund. Thus the fund is augmented by these regular payments, plus the interest on the investment of all previous instalments and interest.

Suppose a certain machine is purchased for $1,000, and that it has an estimated life of five years, and that it will have a scrap value at the end of that period of $25. This means that in five years $975 must be allowed for depreciation. The problem is to find what annual sum must be set aside and accumulated at compound interest, at an assumed rate per cent which

will amount to $975 at the end of the estimated life.

Let it be assumed that the rate is six per cent per annum. Reference to a compound-interest table will show that the amount of an annuity of one dollar at the end of the fifth period is $5.63709296; if $975 is divided by this amount, the quotient will be the annual amount which, theoretically at least, is to be set aside and compounded at six per cent. The following tabulation shows the allowances that would be made during the several years, and how they are derived from the base or the quotient, $172.96, found as described above.

Year	Base	Int. on total previous allowance	Allowance for year	Total allowance to date
1st	$172.96	0.00	$172.96	$172.96
2nd	172.96	$10.38	183.34	356.30
3rd	172.96	21.38	194.34	550.64
4th	172.96	33.04	206.00	756.64
5th	172.96	45.40	218.36	975.00

The amount to be set aside each year for depreciation is found in the column headed "allowance for year."

2. *Significance of the sinking-fund method.*—It will be seen that according to this method the depreciation allowances increase by accelerating amounts as the asset grows older; but to say that there are increases in the values of services means either that the value of a unit of service increases as time elapses, or that the machine has been judged capable of rendering an increasing amount of service—i.e., increasing efficiency—as it grows older. The latter is extremely unlikely, and it is only a little less probable that unit

values should increase. Therefore the allocated cost principle does not justify the sinking-fund method.

3. *Significance of value-shrinkage principle.*—According to the value-shrinkage principle, the sinking-fund method implies that the operating efficiency of the instrument is constant during its life. This implication is illustrated in the following table in which it is shown that a constant annual rental value of $232.96 is implied by the assumption that an asset which costs $1,000 will have a scrap value of $25 at the end of five years, and shrinks in recapitalized value as a result of the sinking-fund method, interest being computed at six per cent per annum.

	Value discounted	Discounted values of the several years' services, and scrap value at various dates. Date of discount					
		Initial	End of 1st yr.	End of 2nd yr.	End of 3rd yr.	End of 4th yr.	End of 5th yr.
1st year's service	$232.96	$219.77	———	———	———	———	———
2nd " "	232.96	207.33	$219.77	———	———	———	———
3rd " "	232.96	195.60	207.33	$219.77	———	———	———
4th " "	232.96	184.53	195.60	207.33	$219.77	———	———
5th " "	232.96	174.09	184.53	195.60	207.33	$219.77	———
Scrap value	25.00	18.68	19.80	20.99	22.25	23.58	$25.00
Total discounted value		$1,000.00	$827.03	$643.69	$449.35	$243.35	$25.00
Value-shrinkage			172.97	183.34	194.34	206.00	218.35

This rental value is ascertained by subtracting from cost, $1,000, the present worth of the estimated scrap value of $25, which present worth is $18.68 +, and dividing the remainder by the present worth of a five-year sinking fund or annuity of one dollar, which is $4.212364.

The value-shrinkages for the successive years are shown on the last line. Comparison of these with the

allowances shown in the preceding table show them to be identical except for two discrepancies of one cent each, which are due to the rounding off of decimals. It should be noted that even according to the value-shrinkage theory, uniform efficiency of the instrument does not usually imply depreciation in accordance with the sinking-fund method. This method would apply only in the rare case when the cost of the instrument, estimated rental and scrap values, and rates of interest bear to one another the relationship expressed above.

4. *Annuity method further considered.*—In the preceding chapter, the annuity method was discussed to some extent. It was found that appreciation was calculated at some given rate of interest, and that the shrinkage in the value of the asset amounted to the supposed value of the services realized. In practice, the shrinkages that take place in successive months or years are considered as equal, and constitute an annuity; hence, the name of this method.

These shrinkages constitute the depreciation, while the appreciations are represented as a source of profit. The annuity rent, or periodic depreciation, must be so chosen that the whole process will reduce the book value of the instrument to its estimated scrap value by the end of its estimated life.

5. *Results obtained by annuity method.*—The rent of the required annuity, or periodic depreciation, is found, according to the annuity method, by subtracting from the original cost the discounted value of the

estimated scrap value, and dividing the remainder by the present worth of an annuity of one dollar for the required time. But a comparison of this method with that of finding the implied periodic rental value—previously described—reveals the fact that the two are identical.

In other words, according to the annuity method, the annuity, or periodic depreciation, *is* the periodic rental value itself—that is, it is value of the services when they are received. The net-level annual amount to be written off as depreciation is exactly the same as that found in the preceding table, viz., $232.96. Or the amount may be determined in another way, by adding to the quotient found by the sinking-fund method—$172.60—the amount of interest, at the same rate per cent, upon the original cost of the asset, which in this case is $60, namely, six per cent on $1,000.

Under the value-shrinkage theory, therefore, the sinking-fund and the annuity method are identical in their net effects. But the sinking-fund method deals only with the net shrinkage, whereas the annuity method represents the asset as both appreciating and depreciating. Thus, as regards the thousand-dollar machine, the annual depreciation would be represented as $232.96. The following form sets forth the entire account with this asset; the supposition is that the depreciation allowance is credited directly to the account with the asset, instead of to a depreciation-reserve account.

INSTRUMENT ACCOUNT

Beginning 1st year	Cost	$1,000	00	1st year	Depreciation	$232	96
	Interest	60	00		Balance	827	04
		1,060	00			1,060	00
	Bal. bro't down	827	04	2nd year	Depreciation	232	96
2nd year	Interest	49	62		Balance	643	70
		876	66			876	66
	Bal. bro't down	643	70	3rd year	Depreciation	232	96
3rd year	Interest	38	62		Balance	449	36
		682	32			682	32
	Bal. bro't down	449	36	4th year	Depreciation	232	96
4th year	Interest	26	95		Balance	243	31
		476	31			476	31
	Bal. bro't down	243	31	5th year	Depreciation	232	96
5th year	Interest	14	60		Balance	24	95
		257	91			257	91
	Bal. bro't down	24	95				

Errors are caused by rounding off decimals at the second place account for the discrepancy of five cents between this final balance and the estimated scrap value of $25. The entry to adjust at the end of the first year would be as follows:

Dr. Instrument account (interest) $ 60.00
Dr. Depreciation of instrument 232.96
    Cr. Interest on invested capital $ 60.00
    Cr. Instrument account
or
    Cr. Reserve for depreciation of instrument 232.96

As the form above shows, the annuity method, considered in the light of the value-shrinkage principle, implies uniform efficiency of the instrument thruout its life. Also, according to this method, the total allowance for depreciation during the life of the asset is considerably more than its cost. Needless to say, the annuity method has not status if it is judged by the allocated-cost principle, since that principle is not concerned in any way with changes in the value of the instrument after it has been purchased.

6. *Level or constant depreciation method.*—When the level or constant depreciation method is used, the depreciation assigned to one unit-period is the same as that assigned to any other unit-period, and the total assigned during the life of the instrument just equals its depreciable value, i.e., its cost minus its estimated scrap-value.

The formula for computing the amount of the periodic depreciation is

$$D = \frac{C - R}{n} \quad \ldots\ldots\ldots\ldots (\quad)$$

In this equation, D represents the amount of the depreciation, C the cost, R the scrap value, and n the number of periods constituting its estimated life. The periodic depreciation percentage, d, stated as a decimal fraction is given by the formula

$$d = \frac{D}{C} = \frac{C - R}{n \times C} \quad \ldots\ldots\ldots (\quad)$$

Thus, in the case of the $1,000 instrument, in the previous illustrations, since the estimated scrap value

is \$25 and the life is 5 years, $D = \frac{\$1,000 - \$25}{5} = \$195$, and $d = \frac{195}{1000}$ or .195 or 19.5 per cent.

7. *Significance of the level-depreciation method.*—Since the costs or present worths of the successive years' services, not counting those of the last year, are considered equal, according to the allocated-cost theory, it is evident that if the level-depreciation method were to be justified, the service-rendering capacity—the efficiency—of the machine would have to increase. But the service-rendering capacity of a productive instrument does not increase with age—quite the contrary—and therefore the allocated-cost principle does not theoretically warrant the level-depreciation method.

8. *Value-shrinkage principle and the level-depreciation method.*—The value-shrinkage principle justifies level depreciation only if the service-rendering capacity decreases in a certain manner with age. Thus, in the illustration just referred to, if the probable service values are discounted at six per cent per annum, value-shrinkage will be constant if the annual rental values are \$255, \$243.30, \$231.60, \$229.90 and \$218.20 respectively. This is made clear by the form shown on page 320.

If no errors had been made in dropping fractional cents when the second decimals were rounded off, the values would have been such as to cause a uniform value-shrinkage of \$195 per annum.

9. *Proportional-depreciation method.*—If the pro-

	Values to be discounted	Discounted values at various dates					
		Beginning	End of 1st yr.	End of 2nd yr.	End of 3rd yr.	End of 4th yr.	End of 5th yr.
1st year's service	$255.00	$210.57					
2nd " "	243.30	216.53	$229.53				
3rd " "	231.60	194.46	206.12	$218.49			
4th " "	219.90	174.18	184.62	195.71	$207.45		
5th " "	208.20	155.58	164.91	174.82	185.30	$196.42	
Scrap value	25.00	18.68	19.80	20.99	22.25	23.58	$25.—
Total discounted		$1,000.00	$804.98	$610.01	$415.00	$220.00	$25.—
Value shrinkage			195.02	194.97	195.01	195.00	195.00

portional-depreciation method is used, the depreciation chosen must be such that its successive application will reduce the book value of the asset to its estimated scrap value by the end of its estimated life. For assets having a short life, this means a very uneven depreciation allowance, beginning with a very large amount in the first year and rapidly diminishing to a very small amount in the last. The depreciation on the thousand-dollar machine, for each of six years, would be the following:

Year	1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.	6th yr.
Book value at beginning	$1,000.00	$478.18	$228.65	$109.34	$52.28	$25.00
Depreciation	521.82	249.53	119.31	57.06	27.28	

10. *Significance of the proportional-depreciation method; allocated-cost principle.*—If the allocated-cost principle is applied, the proportional method implies that as the instrument grows older, its service-rendering capacity decreases almost in the ratio of the complement to the depreciation percentage. If it is true, as some claim, that when the efficiency of an instrument has deteriorated 25 or 30 per cent the

instrument must be discarded, evidently the proportional-depreciation method is not applicable.

11. *Significance as related to value-shrinkage principle.*—Proportional depreciation, according to the value-shrinkage principle implies that the efficiency of the instrument decreases in exactly the same ratio as the book value. The following table shows the proportional value shrinkage of the machine previously referred to.

	Values discounted	Discounted values at various dates of the several years' services, and scrap value.					
		Beginning	End of 1st yr.	End of 2nd yr.	End of 3rd yr.	End of 4th yr.	End of 5th yr.
1st year	$581.82	$548.89					
2nd "	278.21	247.61	$262.47				
3rd "	133.04	111.70	118.40	$125.51			
4th "	63.61	50.39	53.41	56.62	$60.01		
5th "	30.42	22.73	24.09	25.54	27.07	$28.70	
Scrap value	25.00	18.68	19.80	20.99	22.25	23.58	$25.—
Total discounted		$1,000.00	$478.17	$228.66	$109.33	$52.28	$25.—
Value shrinkage			521.83	249.51	119.33	57.05	27.23

Many favor proportional depreciation because it assigns more depreciation to the earlier part of an instrument's life than to the latter. They favor this method for the following reasons: (1) The efficiency of the instrument does decrease. (2) The shrinkage in selling value is more the first month than it is for several years afterward. (3) It is possible, by combining the constantly lessening depreciation allowances and the increasing repair costs to make a fairly uniform total maintenance charge.

In most cases we must concede the first reason, altho there are exceptions; furthermore, to show a rate of decrease in the efficiency of the instrument is

implied in the level-depreciation method. We contend that the second reason has nothing to do with the case. Concerning the third, it has already been recommended in this Text that in the case of machinery or complicated mechanism the depreciation allowance should be replaced by two allowances: viz., an allowance for repairs and an allowance for obsolescence of the type. Finally, it does not seem likely that the decrease is nearly so rapid and extensive as this method would imply.

12. *Method of "diminishing arithmetic progression."*—The method known as "diminishing arithmetic progression" can perhaps best be defined by means of an illustration. Suppose that a certain instrument will last five years, add the numbers 5, 4, 3, 2 and 1—the sum is 15. Then 5/15 of the total depreciable value—5 representing the estimated life including the year in question—is the depreciation of the first year; 4/15 is that of the second year, and so on. Thus, since the depreciable value of the thousand-dollar machine was $975, the depreciation allowances would be respectively $325, $260, $195, $130 and $65.

This method, however, makes a very uneven distribution of the depreciable value of the instrument when the assumed life is short; tho the longer the assumed life, the more nearly uniform is the depreciation.

13. *Significance of "arithmetic progression" method; allocated-cost principle.*—If a discount basis of 6 per cent per annum is assumed, in the illustration

just used, the service values imply a rapid deterioration in the efficiency of the machine, altho with a higher discount basis the implied deterioration is not so rapid. If a higher discount basis is taken, the implication is that the operating efficiency increases during the early part of the instrument's life, and then rapidly decreases. If the service life that is assumed is long enough, this peculiar implication pertains even in the case of any lower discount basis.

14. *"Arithmetic progression" method and value-shrinkage principle.*—According to the value-shrinkage principle, deterioration, as it is shown in the arithmetic progression method, implies that the service-value of the instrument decreases rapidly at first, and more slowly with advancing age, but by an amount that is never less than the depreciation allowance of the period immediately preceding. Thus for the thousand-dollar machine—prospective life, five years; scrap value, $25, estimated on a six per cent discount basis—the implied service-values range from $385 down to $69.40. The higher the discount basis, the more rapid the implied decrease in operating efficiency.

15. *Best depreciation method for practical purposes.*—When the chief thing to be considered is either a single instrument so constructed that the whole wears out and has to be discarded, or individual parts, the method chosen should be one which allows for more depreciation in the earlier periods than in the later period. This is because the service-value, or

operating efficiency, of the instrument rarely increases with age. Frequently it remains constant, as in the case of a house with a well-constructed roof. Often it diminishes during the first few months, because of the time lost while the instrument is undergoing the necessary adjustment. But whether the operating efficiency remains constant or diminishes, the allocated-cost principle, which we hold to be true, operates to diminish depreciation allowances. The amount of depreciation per period for the whole mechanism becomes fairly constant, however, when one figures it not for one part, but for several, which together constitute a whole organized mechanism. This is true, however, only when the mechanism, as a whole, is so old that it is composed of parts of all ages, from those that are perfectly new, to those that are about to fail and be replaced. But even in such a case the principle of diminishing depreciation still holds as regards each separate part.

For practical purposes, therefore, we recommend the level-depreciation method, notwithstanding the fact that theoretically it does not hold for the first part of a machine's life. We recommend it not only because it is logically applicable during the instrument's later life, but because it is the simplest from a practical standpoint. In a factory where depreciation or repair allowances enter into the cost-accounting system, the adoption of this method does not make it necessary to revise the cost rates month by month, as

would be necessary under any other method of computation.

16. *Appraisal method.*—Another method that is sometimes used is the appraisal. The value of the depreciating asset is estimated from time to time by expert appraisers, and the difference between the successive appraised valuations is called the depreciation for that period. This system simply shifts the responsibility from the owner to the appraisers; for the latter must have some method by which they arrive at the valuations which they place upon assets. Seemingly, this would consist either of judging directly the amount that could be realized on an asset, were it to be sold at the time, or else of arriving at a valuation of the article when new, and then making a valuation of the asset as it actually stands. We have already claimed that the salable value of an article of equipment which is being used as an integral part of a going business, has nothing to do with the problem of its depreciation, which is simply a question of cost-apportionment.

REVIEW

State the application to the determination of the amount of depreciation of each of the following methods (1) sinking fund, (2) annuity, (3) level or constant depreciation, (4) proportional depreciation and (5) diminishing arithmetic progression.

Explain how each of these methods harmonizes or conflicts with the theories of depreciation, (a) allocated cost and (b) value shrinkage.

What method combines the greatest number of advantages for practical purposes?

CHAPTER XX

ILLUSTRATION OF THE APPLICATION OF ACCOUNTING PRINCIPLES

1. *Organization of the Parker, Webb, Anderson Company.*—The data contained in this chapter represents an actual case with a change of names, of the quantities and values. In order to save space the month's operations are combined into a few large transactions.

Ralph Parker, Julius Webb and George Anderson have been conducting a foundry business under the firm name of Parker, Webb & Anderson. Parker was production manager with a salary of $200 a month, Webb was sales manager and credit man with a salary of $175 a month, while Anderson was office manager and chief accountant with a salary of $150 a month. All net income or loss after adjustment for salary allowances was divided in proportion to the partners' investments, due provision being made for the duration of the investments.

A trial balance of their ledger after closing out the operating accounts as of June 30, but before the division of the net income among the partners, is here given. The partners' salaries have been regularly

ASSETS		LIABILITIES, CAPITAL AND RESERVES	
Land	$ 10,000.00	Mortgage Bonds Payable	$ 20,000.00
Buildings	29,400.00	Accounts Payable (Sched. B)	23,800.00
Machinery	30,000.00	Notes Payable	3,000.00
Foundry Office Equipment	500.00	Accrued Payroll	10,000.00
Sales Office Equipment	750.00	Wages Unclaimed	650.00
General Office Equipment	600.00	Accrued Bond Interest	500.00
Tools	12,000.00	Accrued Taxes	300.00
Cash in Bank	5,000.00	Accr. Liability Ins. Payable	5,600.00
Petty Cash	100.00	Reserve for Bad Debts	600.00
Accounts Receivable (Sched. A)	64,000.00	Ralph Parker, Capital	48,600.00
Notes Receivable	4,000.00	Julius Webb. Capital	32,400.00
Stores (Sched. C)	8,812.16	Geo. Anderson, Capital	27,000.00
Moulding Sand	2,224.84	Ralph Parker, Drawing	250.00
Finished Goods (Sched. D)	9,843.00	Julius Webb, Drawing	100.00
Unexpired Fire Insurance	220.00	Profit and Loss	10,650.00
Liability Insurance Deposit	6,000.00		
	$183,450.00		$183,450.00

Schedule A—Accounts Receivable

Toro Motor Company	$13,500.00	Homer Furnace Co.	$ 1,000.00
Minneapolis Steel & Machinery Co.	30,000.00	Exclusive Heater Supply Company	1,500.00
Emerson-Brantingham Company	15,000.00	Brickstaff Company	1,500.00
Knight Air Heater Company	1,500.00		

Schedule B—Accounts Payable

Zenith Iron Company	$ 6,000.00	N. W. Copper & Brass Co.	$ 750.00
Chicago Blast Furnaces	5,500.00	National Lead Co.	550.00
Superior Blast Furnaces	1,500.00	Minn. Aluminum Co.	500.00
Chicago Metal Reclamation Co.	5.000.00	Hennepin Quarries	1,500.00
Chicago Iron Co.	1,000.00	Independent Oil Co.	1,000.00
		Metal Products Co.	500.00

Schedule C—Stores

Office Supplies	$ 400.00	Copper, 332 lbs.	$ 53.12
Pig Iron, 514,857 lbs.	3,750.34	Phosphor Copper, 1,050 lbs.	252.20
Scrap Steel, 65,935 lbs.	263.74	Aluminum Ingot, 671 lbs.	254.92
Brass, 6,300 lbs.	945.02	Aluminum Scrap, 255½ lbs.	64.88
Lead, 416 lbs.	20.78	Coke, 792,527 lbs.	2,615.34
Zinc, 197 lbs.	11.86	Limestone, 168,064 lbs.	105.04
Tin, 132 lbs.	67.36	Oils, 14.54 Gal.	7.56

Schedule D—Finished Goods

Iron Castings, 203,428 lbs.	$ 8,700.48	Miscellaneous Product, 87,787 lbs.	$ 849.94
Brass Castings, 251.14 lbs.	50.58	Patterns	122.66
Aluminum Castings, 93.42 lbs.	119.34		

debited to the relevant expense accounts and credited to their respective drawing accounts, to the latter of which their several drawings were charged. Depreciation of buildings, machinery et cetera has been taken into account by charging to the various operating expense accounts the cost of repairs made and by additional allowances for obsolescence which were credited directly to the accounts with the assets themselves. The valuations as given are considered fair.

The existing plant was too small to accommodate the present volume of business which was increasing steadily. The partners decided to purchase adjacent land and erect additions to their plant. The funds needed for these additions were estimated at between $30,000 and $35,000. To finance this proposition the partners interested Frank P. Graves, H. M. Kane and Edgar F. Smith, each of whom agreed to put in $7,500 if the partners left $10,000 of their profits in the business and incorporated the business. By agreement the value of the good-will was fixed at $7,000.

Accordingly the Parker-Webb-Anderson Foundry Company was organized with an authorized capital stock of $200,000 consisting of 4,000 shares of a par value $50 each. The partners adjusted their books to represent the division of net income; and, Parker drew out $542.50, Webb $295 and Anderson $162.50, thus leaving $10,000 of their profit in the business.

A subscription book was opened and subscriptions to capital stock were received as follows:

SUBSCRIPTION BOOK

DATE		SUBSCRIBER'S NAME	NO. OF SHARES	PAR VALUE	PAYMENT			
					DATE	AMOUNT	MEANS	REFERENCE
1916 July	1	Ralph Parker	1,125	$56,250.00	July 1	$56,250.00	Bus. Int.	Minutes
	1	Julius Webb	750	37,500.00	" 1	37,500.00	" "	"
	1	Geo. Anderson	625	31,250.00	" 1	31,250.00	" "	"
	1	Frank P. Graves	150	7,500.00	" 1	7,500.00	Cash	
	1	H.M. Kane	150	7,500.00	" 1	7,500.00	Cash	
	1	Edgar F. Smith	150	7,500.00	" 1	7,500.00	Cash	
			2,950	$147,500.00		$147,500.00		

2. *The sales agreement.*—The firm of Parker, Webb & Anderson then presented to the stockholders a proposition to sell to the Parker-Webb-Anderson Foundry Company, all the assets of their foundry business, including the good-will and agreed not to engage in any other foundry business in that State for a period of ten years for a consideration of $125,000. The terms of sale were (1) that the corporation was to assume all the existing liabilities of the firm aggregating $63,850, and (2) was to apply the purchase price as follows: $56,250 to the payment of Parker's subscription to capital stock, $37,500 to the payment of Webb's subscription and $31,250 to the payment of Anderson's subscription. The proposition was approved by the stockholders as recorded on page 3 of the Minute Book and accepted by the Board of Directors, consisting of Parker, Webb, Anderson, Graves, Kane and Smith as also recorded on the same page. The transfer was effected and Graves, Kane and Smith paid their subscriptions in full, in cash.

It would be interesting to show the entries necessary to record the above sale on the books of the old firm and to close their books, but space considerations

forbid. We proceed at once to the books of the incorporated business.

3. *The opening entries.*—For the entries required to open the books of the corporation and record the subscriptions to capital stock, the payment of these and the consummation of the purchase of the established business from the old firm the reader is referred to the first page of the journal (see page 358) and the first two entries in the cash book (page 341). The explanations given in connection with these entries explain them thoroly.

The books to be kept will consist of an ordinary journal, columnar cash book, petty cash book (which will be a memorandum book only, not a posting medium), invoice register, sales book and payroll summary as books of preparatory entry, and a general ledger, stock ledger, accounts receivable ledger, accounts payable ledger, stores ledger and finished goods ledger, as books of subsequent entry. Of these ledgers only the general ledger and accounts receivable ledger will be shown.

The following accounts will be kept in the general ledger:

GENERAL LEDGER ACCOUNTS

Cash in Bank.
Petty Cash.
Accounts Receivable.
Cash Discount Offered on Sales.
Notes Receivable.
Notes Receivable Discounted.
Reserve for Bad Debts.
Doubtful Debts.
Bad Debts.
Finished Goods.
Stores.
Moulding Sand.
Fire Insurance.
Liability Insurance Deposit.
Postage—Sales Department.
Postage—General Office.
Land.
Buildings.
Buildings Depreciation Reserve.
Machinery.

Machinery Depreciation Reserve.
Tools.
Foundry Office Equipment.
Sales Office Equipment.
General Office Equipment.
Goodwill.
Reserve for Depreciation of Office Equipment.
Mortgage Bonds Payable.
Accounts Payable.
Cash Discount offered on Purchases.
Notes Payable.
Accrued Payroll.
Wages Unclaimed.
Accrued Bond Interest.
Accrued Taxes.
Accrued Liability Insurance Payable.
Accrued Lighting Expense Payable.
Freight Payable.
Capital Stock.
Subscription to Capital Stock.
Parker, Webb & Anderson, Vendors.
Undivided Profits.
Dividend No. 1.
Direct Labor—Iron Castings.
Indirect Labor—Iron Castings.
Direct Labor—Brass Castings.
Indirect Labor—Brass Castings.
Direct Labor—Aluminum Castings.
Indirect Labor—Aluminum Castings.
Direct Labor—Misc. Products.
Direct Labor—Cupola.
Direct Labor—Welding.
Direct Labor—Patterns.
Indirect Labor—Patterns.
Direct Labor—Power.
Liability Insurance.
Lighting Expense.
Depreciation of Machinery.
Depreciation of Building.
Taxes.
Building Expense.
Air Expense.
Superintendence.
Foundry Office Salaries.
Sales—Iron Castings.
Sales—Brass Castings.
Sales—Aluminum Castings.
Sales—Misc. Products.
Sales—Welding Service.
Sales—Patterns.
Salaries Sales Office.
Misc. Sales Expense.
Misc. General Expense.
Depreciation of Office Equip.
Salaries General Office.
Discount on Notes.
Interest on Bonds.
General Foundry Expense.
Cupola.
Welding Manufacturing.
Pattern Manufacturing.
Brass Castings Manufacturing.
Aluminum Castings Manufacturing.
Iron Castings Manufacturing.
Misc. Products Manufacturing.
Marketing Expenses.
Trading.
General Expense.
Profit and Loss (Cost and Income).

Let us consider the transactions and operations for the month of July. Purchases, sales, cash payments, cash receipts and other operations come along from day to day in any order. To save space and energy, however, we shall deal separately with all purchases, then all sales, and so on.

4. *The purchase register.*—Consider the following transaction: July 6 Invoice dated June 2 for 800 gallons of oil, price 51¢, on 60 days' time subject to a discount of 2 per cent for cash in ten days; freight payable $24.16, arrives from the Independent Oil Company.

In this connection the reader will note that we have treated cash discounts offered as a deduction in the cost of the goods purchased and the freight payable as an increase in the cost of these goods. This is done to illustrate this method of treating discounts and to show the actual cost of the goods under the theory discussed in Chapter X.

Analyzing this transaction we see that the net cash cost of the oil, including the freight (but not including any allowance for buying and receiving expenses, which, to prevent the illustration from becoming too complex, we shall ignore) is $424. The general ledger account which includes oil is "stores," and the amount payable on the invoice is $408 if we take the 60 days' time, tho we have a counter right to $8.16 for discount if we pay in the ten days. In addition we find that the amount owed the transportation company is $24.16.

Accordingly we enter this invoice (numbered "1") in the invoice register as shown, debiting stores ledger account "oil" and general ledger account "stores" $424, debiting "discount (offered) on purchases" $8.15, crediting "freight payable" $24.16 and credit-

PURCHASES

Date Rec'd		Date of Inv.	Inv. No.	Name of Firm	Terms	Item Purchased and Price	Freight
July	6	7/2	1	Independent Oil Co.	60/2/10	800 gal. Oil @ 51¢	$ 24.16
"	7	7/2	2	Chic. Metal Recl. Co.	60/2½/10	400 sh. tons Iron Scrap @ $10.68	120.00
"	8	7/3	3	N. W. Copper & Brass Co.	60/3/10	29,947 lbs. Brass @ 15⅝¢	24.73
"	8	7/3	4	Galena Zinc Co.	10 days	9651⅛ lbs. Zinc @ 6¢	
"	9	7/6	5	Minn. Aluminum Co.	60/3/10	2,809 lbs. Al. Scrap @ 23¢	5.15
"	10	7/8	6	St. Paul Scrap Co.	30/2/10	60 tons Steel Scrap @ $8.16⅛	53.50
"	11	7/8	7	Zenith Iron Co.	60/2/10	300 long tons Pig Iron @ $14.96	107.69
"	13	7/11	8	Nat'l Lead Co.	30/1/10	897 lbs. Lead @ 5.3¢	
"	14	7/11	9	N. W. Copper & Brass Co.	60/3/10	400 lbs. Copper @ 16⅛¢	2.27
"	15	7/15	10	Minneapolis Gas Light Co.	10 days	60 tons Coke @ $6.65	
"	16	7/14	11	Hennepin Quarries	60/3/10	97.22 tons Limestone @ $1.04	23.42
"	17	7/13	12	Chic. Metal Recl. Co.	60/2½/10	49.38 tons Steel Scrap @ $8.13	45.32
"	18	7/14	13	Standard Oil Co.	30/1/10		prepaid
"	20	7/18	14	Western Al. Distrib. Co.	30/1/10	790 gal. Oil @ 48½¢	23.48
"	21	7/18	15	Union Brass & Metal Mfg. Co.	30/1/10	3000 lbs. Al. Scrap @ 21½¢ 31,020 lbs. Brass @ 14.85¢	6.45 16.57
"	22	7/18	16	Superior Blast Furnaces	60/3/10	279 long tons Pig Iron @ $15	111.86
"	23	7/17	17	Moulding Mach. Mfg. Co.	30/1½/10	1 Moulding Machine @ $650	650.00
"	25	7/20	18	Chicago Iron Co.	60/3/10	100.47 tons Iron Scrap @ $10.65	30.10
"	27	7/27	19	Remington Typewriter Co.	30/2/10		prepaid
"	28	7/28	20	Minneapolis Gas Light Co.	10 days	1 typwriter, Sales Office @ $125	
"	30	7/27	21	Union Brass & Metal Mfg. Co.	30/1/10	88½ tons Coke @ $6.65 683 lbs. Copper @ 15 7/10¢	 2,12

INVOICE REGISTER

DATE REC'D 1915	INV. NO.	ACCOUNTS PAYABLE	DATE OF INV.	TERMS	AM'T PAYABLE	PAID DATE	PAID CK. NO.	FREIGHT PAYABLE	DISC'T OFFERED ON PURCHASES	STORES AMT. DR.	STORES L-F	STORES ACCOUNT	MISC. ACCTS. DR. AMOUNT	MISC. ACCTS. DR. L-F	MISC. ACCTS. DR. ACCOUNT
July 6	1	Independent Oil Co.	July 2	60/2/10	$408 —	7/11	15	$24 16	$8 16	$424 —	11	Oil			
7	2	Chic. Metal Reclam. Co.	" 2	60/2½/10	4,232 —	7/11	16	120 —	105 80	4,246 20	8	Iron Scrap			
8	3	N.W. Copper & Brass Co.	" 3	60/3/10	4,679 22	7/13	17	24 73	140 38	4,563 57	3	Brass			
8	4	Galena Zinc Co.	" 3	10 days	57 92	7/13	18			57 92	13	Zinc			
9	5	Minn. Aluminum Co.	" 6	60/3/10	646 07	7/16	19	5 15	19 38	631 84	1	Al. Scrap			
10	6	St. Paul Scrap Co.	" 8	30/2/10	490 —	7/18	21	53 50	9 80	533 70	12	Steel Scrap			
11	7	Zenith Iron Co.	" 8	60/2/10	4,488 —	7/18	22	107 69	89 76	4,505 93	7	Pig Iron			
13	8	National Lead Co.	" 11	30/1/10	47 54	7/21	23		48	47 06	9	Lead			
14	9	N.W. Copper & Brass Co.	" 11	60/3/10	64 67	7/21	24	2 27	1 94	65 —	5	Copper			
15	10	Minneapolis Gas Light Co.	" 15	10 days	399 —	7/25	28			399 —	4	Coke			
16	11	Hennepin Quarries	" 14	60/3/10	101 11	7/24	27	23 42	3 03	121 50	10	Limestone			
17	12	Chic. Metal Reclam. Co.	" 13	60/2½/10	446 78	7/23	26		10 04	436 74	12	Steel Scrap			
18	13	Standard Oil Co.	" 14	30/1/10	383 15			23 48	3 83	402 80	11	Oil			
20	14	Western Aluminum Distrib. Co.	" 18	30/1/10	645 —	7/28	31	6 45	6 45	645 —	1	Al. Scrap			
21	15	Union Brass & Metal Mfg. Co.	" 18	30/1/10	4,606 50	7/28	30	16 57	46 06	4,577 01	3	Brass			
22	16	Superior Blast Furnaces	" 18	60/3/10	4,185 —	7/28	32	111 86	125 55	4,171 31	7	Pig Iron			
23	17	Moulding Mach. Mfg. Co.	" 17	30/1½/10	650 —	7/27	29	6 50	9 75				$646	75 14	Machinery
25	18	Chicago Iron Co.	" 20	60/3/10	1,100 11	7/30	33		32 10	1,068 01	8	Iron Scrap			
27	19	Remington Typewriter Co.	" 27	30/2/10	125				2 50				122	50 18	Sales Office Equipment
28	20	Mpls. Gas Light Co.	" 28	10 days	588 52					588 52	4	Coke			
30	21	Union Brass & Metal Mfg. Co.	" 27	30/1/10	107 23			2 12	1 07	108 28	5	Copper			
					$28,450 32			$527 90	$616 08	$27,593 39			$769	25	
					23			30	56	7					

ing general ledger account "accounts payable" and specifically the "Independent Oil Company" $408. Here the general ledger accounts, "stores" and "accounts payable" are controlling accounts.

It will not be necessary to analyze each other purchase at length. To save space we may tabulate the remaining purchases as follows, from which table the reader himself may analyze the transactions and compare them with the entries shown in the invoice register.

Practically the only variation from the above described method of entering purchases occurs in connection with items 12 and 18. Here the vendors have prepaid the freight charges and added them to the invoices. The amounts entered in the "amount-payable" column therefore include the prepaid freight. The discounts, however, are still based on the amount of the invoice before the freight charges were added.

5. *Analysis of sales.*—The sales and deliveries are given in tabular form on page 337.

In the first sale, the invoice value of 160,000# of iron castings at 3.45¢ is $5,520. But this is a 30 day valuation that includes an allowance for interest and credit insurance. We offer a discount of 1 per cent for cash in ten days or $55.20, leaving $5,464.80 as the cash sales value of the iron castings. This we enter in the "sales iron castings" column. In like manner the 30 day invoice value of 3,000# of brass castings is $625.80, which after taking off $6.26 for discount

TABLE OF SALES AND DELIVERIES

DATE JULY	INV. NO.	FIRM	IRON CASTINGS		BRASS CASTINGS		ALUMINUM		MISC. PROP.		WELDING AMOUNT	PATTERNS AMOUNT
			QUANTITY LBS.	PRICE CENTS	QUANTITY LBS.	PRICE CENTS	QUANTITY LBS.	PRICE CENTS	QUANTITY LBS.	PRICE CENTS		
3	1	Toro Motor Co.	160,000	3.45	3,000	20.86						$500.00
3	2	Emerson-Brantingham Co.	130,000	3.45	2,000	20.86						
6	3	Raymer Hardware Co.							7,000	1.04		
7	4	Mpls Steel & Mach. Co.	100,076	3.45	1,800	20.86	150	43.9				
7	5	Toro Motor Co.	160,000	3.45	3,000	20.86					$48.06	
10	6	Knight Air Heater Co.	100,000	3.45	1,800	20.86			7,000	1.04		
10	7	E.-B. Co.	130,000	3.45	2,000	20.86	190½	43.9				
14	8	Mpls. S. & M. Co.	100,000	3.45	1,800	20.86						300.00
14	9	Warner Hardware Co.							6,000	1.04		
15	10	Toro Motor Co.	160,000	3.45	3,000	20.86	350	43.9				
17	11	E.-B. Co.	131,000	3.45	2,000	20.86	300	43.9				
17	12	Gardner Hardware Co.							5,900	1.04		
18	13	Mpls. S. & M. Co.	100,000	3.45	1,800	20.86	300	43.9				
21	14	Toro Motor Co.	160,000	3.45			300	43.9				500.00
22	15	Morison Hardware Co.							4,494	1.05		
25	16	E.-B. Co.	100,000	3.45	2,300	20.86						
29	17	St.Cloud Mfg. Co.	32,888	3.54	2,803½	20.84			4,000	1.05		723.72
			1,563,964		27,303½		1,590½		34,394		$48.06	$2,023.72

B

SALES BOOK

DATE 1916		INV. NO.	ACCTS. RECEIVABLE	L-F	AM'T. RECEIVABLE	DISC'T. OFFERED ON SALES	SALES IRON CASTINGS	SALES BRASS CASTINGS	SALES ALUMINUM CASTINGS	SALES MISC. PRODUCTS	SALES WELDING	SALES PATTERNS
July	3	1	Toro Motor Co.	11	$6,145 80	$61 46	$5,464 80	$610 54				
	3	2	Emerson-Brantingham Co.	2	5,402 20	54 02	4,440 15	413 03				$495 —
	6	3	Raymer Hardware Co.	10	72 80	73				$72 07		
	7	4	Mpls. Steel & Mach. Co.	7	3,893 95	38 94	3,413 09	371 73	$65 19			
	7	5	Toro Motor Co.	11	6,193 86	61 94	5,464 80	619 54			$47 58	
	10	6	Knight Air Heater Co.	6	3,898 28	38 98	3,415 50	371 73		72 07		
	10	7	E-B Co.	2	4,965 64	49 66	4,440 15	413 03	63 60			
	14	8	Mpls. Steel & Mach. Co.	7	4,125 48	41 25	3,415 50	371 73				297 —
	14	9	Warner Hardware Co.	12	63 40	63				61 78		
	15	10	Toro Motor Co.	11	6,289 45	62 99	5,464 80	619 54	152 12			
	17	11	E-B Co.	2	5,068 60	50 68	4,474 31	413 03	130 38			
	17	12	Gardner Hardware Co.	4	61 36	61				60 75		
	18	13	Mpls. Steel & Mach. Co.	7	3,967 13	39 67	3,415 50	371 73	130 38			
	21	14	Toro Motor Co.	11	6,151 70	61 52	5,464 80		130 38			495 —
	22	15	Morison Hardware Co.	9	47 19	47				46 72		
	25	16	E-B Co.	2	3,929 78	39 30	3,415 50	474 98				
	29	17	St. Cloud Mfg. Co.	8	2,514 21	25 14	1,152 60	578 41		41 58		716 48
					$62,809 68	$628 08	$53,446 50	$5,638 02	$691 65	$354 97	$47 58	$2008 48
					3	57	49	50	51	52	53	54

leaves $619.54, to be entered in the "sales brass castings" column. The entire invoice value of $6,145.80 is entered in the "amount receivable" column as a debit to the Toro Motor Company and the entire discount is entered in the discount column as a credit to cash discount offered on sales. Each of the other sales is treated in like manner.

6. *Analysis of payroll.*—Next we consider the payroll. Space limitations forbid us to deal with job tickets and the actual weekly payroll. Therefore we substitute a payroll summary as follows, in which the wage and salary costs are classified with respect to the connections in which the work was done.

7. *Petty cash.*—The payments from the cash drawer at the office are handled under the impressed cash system. The petty cashier starts the month with $100; he is permitted to receive no money from any source except the treasurer, who, when he satisfactorily accounts for his $100 at the end of the month, will give him a check to cover exactly his disbursements and restore his fund to $100.

The petty cashier in the meantime pays for telegrams, messengers, stamps and the like, taking receipts for these disbursements.

When reporting to the treasurer he submits a classified statement of his expenditures supported by his receipts and exhibits cash for his balance. We may suppose his expenditures to have been as shown on the following petty cash record. The treasurer gives him a check for $99.50 and enters the columnar

PAYROLL SUMMARY

CLASS	PERIOD	TOTAL	IRON CASTINGS	BRASS CASTINGS	ALUMINUM CASTINGS	MISC. PRODUCTS	CUPOLA	WELDING	PATTERN	POWER	SUPER-INTENDENCE
Direct Labor	7/1 — 7/3	$2,901 06	$2,267 90	$ 47 38	$ 21 40	$ 1 84	$ 314 36	$ 18 83	$ 212 03	$ 17 32	
	7/6 — 7/11	5,687 66	4,445 09	92 86	41 96	3 61	617 05	36 90	415 58	34 61	
	7/13 — 7/18	5,802 09	4,535 80	94 76	42 61	3 68	628 72	37 65	424 06	34 61	
	7/20 — 7/25	5,916 52	4,626 51	96 66	43 66	3 75	640 39	38 40	432 54	34 61	
	7/27 — 7/31	4,835 09	3,779 84	78 97	35 67	3 07	523 93	31 38	353 38	28 85	
			$19,655 14	$410 63	$185 50	$15 95	$ 2,724 45	$163 16	$1,837 59	$150 —	
			39	40	41	42	43	44	45	46a	
Indirect Labor	7/1 — 7/3	$354 86	$284 79	$ 17 98	$ 4 26				$ 7 45		$40 38
	7/6 — 7/11	709 70	569 57	35 99	8 51				14 86		80 77
	7/13 — 7/18	709 70	569 57	35 99	8 51				14 86		80 77
	7/20 — 7/25	709 70	569 57	35 99	8 52				14 85		80 77
	7/27 — 7/31	591 44	474 64	29 99	7 10				12 40		67 31
			$ 2,468 14	$ 155 94	$36 90				$ 64 42		$350 —
			39a Foundry Office	40a Sales Office	41a General Office				45a		48
Office Salaries	7/1 — 7/3	$ 48 46	$ 13 85	$ 17 31	$ 17 30						
	7/6 — 7/11	96 92	27 69	34 61	34 62						
	7/13 — 7/18	96 92	27 69	34 62	34 61						
	7/20 — 7/25	96 92	27 69	34 61	34 62						
	7/27 — 7/31	80 78	23 08	28 85	28 85						
		—	$120 —	$150 —	$150 —						
Grand Total Payroll		$28,637 82	60	61	62						
		25									

totals on the stub of his check and in the cash book.

8. *The main cash book.*—Now we may deal with the main cash receipts and payments. The corporation starts on July 1 with a balance of cash in bank amounting to $26,500, of which $4,000 was turned over by the old firm and $22,500 was obtained in the sale of stock for the purpose of financing new construction. Let us suppose the subsequent cash transactions to be as follows:

July	1	Receive check of Mpls. Steel & Machinery Co. on acct.	$15,000.
"	1	Remit check No. 1, to Independent Oil Co. in full acct.	1,000.
"	1	Remit check No. 2, to Chicago Metal Reclamation Co. in full acct.	5,000.
"	2	Receive check of Emerson-Brantingham Co., in full acct.	15,000.
"	2	Remit check No. 3 to N. W. Copper & Brass Co. in full acct.	750.
"	2	Remit check No. 4 to Minn. Aluminum Co. in full acct.	500.
"	2	Cash check No. 5 for Payroll and Pay Employees	7,797.
"	3	Receive check of Knight Air Heater Co., in full acct.	1,500.
"	3	Receive check of Homer Furnace Co., in full acct.	1,000.
"	3	Remit check No. 6, to Zenith Iron Co., in full acct.	6,000.
"	6	Receive check of Exclusive Heater Supply Co. in full acct.	1,500.
"	6	Receive check of Toro Motor Co., in full acct.	13,500.
"	6	Remit check No. 7 to Chicago Blast Furnace	5,500.
"	6	Remit check No. 8 to Chicago Iron Co., in full acct.	1,000.
"	6	Draw check No. 9 City Realty Co. in payment for land.	7,500.
"	7	Remit check No. 10 to National Lead Co., in full acct.	550.
"	7	Remit check No. 11 to Superior Blast Furnace in full acct.	1,500.
"	7	Remit check No. 12 to Metal Products Co., in full acct.	500.
"	8	Receive check of Mpls. Steel & Mach. Co., bal. of old acct.	15,000.
"	9	Remit check No. 13 to Hennepin Quarries, in full acct.	1,500.
"	9	Draw check No. 14 for Payroll and Pay Employees	5,507.38
"	11	Remit check No. 15 to Independent Oil Co., for inv. of 7/2 less disct.	399.84
"	11	Remit check No. 16 to Chic. Metal Recl. Co. for inv. of 7/2 less disct.	4,126.20
"	13	Receive check of Toro Motor Co. for inv. 7/3 less disct.	6,084.34
"	13	Receive check of E.-B. Co. for inv. 7/3 less disct.	5,348.18

PETTY-CASH RECORD

RECEIPTS DATE		AMT.		DATE		ITEMS PURCHASED	TOTAL		GEN'L EXPENSE		POSTAGE SALES		POSTAGE GEN'L. OFFICE		STORES		MISC. SALES EXPENSE		BAL.	
July	1	$ 100.	—	July	1	Account Books & Forms	$50	—	$50	—										
				"	1	1,000 2-cent stamps, Sales Office	20	—			$20	—								
				"	1	1,000 2-cent stamps, Gen'l Office	20	—					$20	—						
				"	6	Stationery	5	—							$5	—				
				"	25	Telegram to St. Cloud Mfg. Co.		50									$	50		
					30	Dining prospective customers	4	—									4	—		
						Transferred to Cash Book	$99	50	$50	—	$20	—	$20	—	$5	—	$1	50		
						Balance		50											$	50
		$ 100	—				$100	—	$50	—	$20	—	$20	—	$5	—	$4	50	$	50
Bal. 7 check	31	$ 99	50																	

July 13	Remit check No. 17 to N. W. Copper & Brass Co. for inv. of 7/3 less disct.	$4,538.84
" 13	Remit check No. 18 to Galena Zinc Co. for inv. of 7/3.	57.92
" 16	Receive check of Raymer Hardware Co for inv. of 7/6 less disct.	72.07
" 16	Remit check No. 19 to Minn. Aluminum Co. for inv. of 7/6 less disct.	626.69
" 16	Draw check No. 20 for Payroll and Pay Employees ..	6,494.28
" 17	Receive check from Mpls. S. & M. Co. for inv. of 7/7 less disct.	3,855.01
" 17	Receive check from Toro Motor Co. for inv. of 7/7 less disct.	6,131.92
" 18	Remit check No. 21 to St. Paul Scrap Co. for inv. of 7/8 less disct.	480.20
" 18	Remit check No. 22 to Zenith Iron Co. for inv. of 7/8 less disct.	4,398.24
" 20	Receive check of Knight Air Heater Co. for inv. of 7/10 less disct.	3,859.30
" 20	Receive check of E.-B. Co. for inv. of 7/10 less disct.	4,935.78
" 21	Remit check No. 23 to National Lead Co. for inv. of 7/11 less disct.	47.06
" 21	Remit check No. 24 to N. W. Copper & Brass Co. for inv. of 7/11 less disct.	62.73
" 23	Draw check No. 25 for Payroll and Pay Employees ..	6,608.71
" 23	Remit check No. 26 to Chic. Metal Recl. Co. for inv. of 7/13 less disct.	436.74
" 24	Remit check No. 27 to Hennepin Quarries for inv. of 7/14 less disct.	98.08
" 24	Receive check from Mpls. S. & M. for inv. of 7/4 less disct.	4,084.23
" 25	Receive check from Toro Motor Co. for inv. of 7/14 less disct.	6,236.46
" 25	Remit check No. 28 to Mpls. Gas Light Co. for inv. of 7/15	399.00
" 27	Receive check from E.-B. Co. for inv. of 7/17 less disct.	5,017.72
" 27	Remit check No. 29 to Moulding Mach. Mfg. Co. for inv. of 7/17 less disct.	640.25
" 28	Receive check from Mpls. S. & M. Co. for inv. of 7/18 less disct.	3,917.61
" 28	Remit check No. 30 to Union Brass & Metal Mfg. Co. for inv. of 7/18 less disct.	4,560.44
" 28	Remit check No. 31 to Western Aluminum Distrib. Co. for inv. of 7/18 less disct.	638.55
" 28	Remit check No. 32 to Superior Blast Furnaces for inv. of 7/18 less disct.	4,059.45
" 30	Remit check No. 33 to Chic. Iron Co. for inv. of 7/20 less disct.	1,068.01
" 30	Draw check No. 34 for Payroll and Pay Employees ..	6,723.15
" 31	Receive check of Toro Motor Co. for inv. of 7/21 less disct.	6,090.18
" 31	Draw check No. 35 to the Twin City Construction Co. on contract to construct buildings	10,000.00

July 31 Draw check No. 36 favor Petty Cashier to cover petty disbursements of July, charging the following accounts:

General Expense	$50.00	
Postage—Sales Office	20.00	
Postage—General Office	20.00	
Stores	5.00	
Mics. Sales Expense	4.50	
		$99.50

" 31 Draw check No. 37 to Minneapolis & St. Louis for Freight Bills to date 527.90

9. *Cash transactions.*—In the first transaction we enter $15,000 in the "net cash" column as a debit to cash and also in the "accounts-receivable" column as a credit to the Minneapolis Steel and Machinery Company. The other cash receipts down to July 8 receive like treatment. On July 13, we receive the Toro Motor Company's check for $6,084.34 in payment of our invoice #1 for $6,145.80 (see Sales Book) but subject to a discount of $61.46. We give the Toro Motor Company credit for the full amount of the invoice in the accounts-receivable column, debit cash discount offered on sales $61.46 in the discount on sales column and enter the actual amount of the check in the net cash column. The other receipts do not differ from the above two illustrations and are left to the reader's observation.

The second cash transaction is a remittance to a creditor on account. In our columnar cash book we enter $1,000 in the accounts-payable column as a debit to the Independent Oil Company, and in the net cash column as a credit to "cash in bank." The next three items are similar.

Check #5 is drawn and cashed to make up the

pay envelops. We debit accrued payroll by entering the amount in that column and credit cash in bank by entering it in the net cash column.

On July 5, we close a deal for additional foundry site and give the City Realty Company a check for $7,500. The account to be debited is land, which debit we effect by writing $7,500 in the miscellaneous column (since there is no special column for land), writing the name of the account in connection.

The next check to merit attention is #15. Here

CASH RECEIPTS

DATE	ACCOUNTS CREDITED	INV. NO.	L-F	ACCOUNTS REC. (CR.)	L-F	MISC GEN'L LEDGER ACC'TS	DISC'T ON NOTES	DISC'T ON SALES	NET CASH
July 1	Parker, Webb & Anderson, Vendors		2			$4,000 —			$4,000 —
1	Subscription to Capital Stock		32			22,500 —			22,500 —
1	Mpls. Steel & Mach. Co.		7	$15,000 —					15,000 —
2	E-B Co.		2	15,000 —					15,000 —
3	Knight Air Heater Co.		6	1,500 —					1,500 —
3	Homer Furnace Co.		5	1,000 —					1,000 —
6	Exclusive Heater Supply Co.		2	1,500 —					1,500 —
6	Toro Motor Co.		11	13,500 —					13,500 —
8	Mpls. Steel & Mach. Co.		7	15,000 —					15,000 —
13	Toro Motor Co.	1	11	6,145 80				$61 46	6,084 34
13	E-B Co.	2	2	5,402 20				54 02	5,348 18
16	Raymer Hardware Co.	3	10	72 80				73	72 07
17	Mpls. Steel & Mach. Co.	4	7	3,893 95				38 94	3,855 01
17	Toro Motor Co.	5	11	6,193 86				61 94	6,131 92
20	Knight Air Heater Co.	6	6	3,898 28				38 98	3,859 30
20	E-B Co.	7	2	4,985 64				49 86	4,935 78
24	Mpls. Steel & Mach. Co.	8	7	4,125 48				41 25	4,084 23
25	Toro Motor Co.	10	11	6,299 45				62 99	6,236 46
27	E-B Co.	11	2	5,068 40				50 68	5,017 72
28	Mpls. Steel & Mach. Co.	13	7	3,957 18				39 57	3,917 61
31	Toro Motor Co.	14	11	6,151 70				61 52	6,090 18
31	Doubtful Debts Breckstaff Co.		3a			1,128 94			1,128 94
31	Notes Rec. Discounted		4a			61 36	$ 16		61 20
				$118,694 74		$27,690 30	$ 16	$561 94	$145,822 94
				3			58	57	1

CASH PAYMENTS

DATE 1916		TO WHOM ISSUED	CK. NO.	INV. NO.	NET CASH	DISC'T. ON PURCHASES	ACCTS. PAYABLE AM'T.	L-F	ACCRUED PAYROLL	MISC. GEN'L. LEDGER ACCOUNTS AM'T. DR.	L-F	ACCOUNT
July	1	Independent Oil Co.	1		$1,000 —		$1,000 —					
	1	Chic. Metal Reclam. Co.	2		5,000 —		5,000 —					
	2	N.W. Copper & Brass Co.	3		750 —		750 —					
	2	Minn. Aluminum Co.	4		500 —		500 —					
	2	Payroll	5		7,797 —				$7,797 —			
	3	Zenith Iron Co.	6		6,000 —		6,000 —					
	6	Chic. Blast Furnaces	7		5,500 —		5,500 —					
	6	Chicago Iron Co.	8		1,000 —		1,000 —					
	6	City Realty Co.	9		7,500 —					$7,500 —	11	Land
	7	National Lead Co.	10		550 —		550 —					
	7	Superior Blast Furnaces	11		1,500 —		1,500 —					
	7	Metal Products Co.	12		500 —		500 —					
	9	Hennepin Quarries	13		1,500 —		1,500 —					
	9	Payroll	14		5,507 38				5,507 38			
	11	Independent Oil Co.	15	1	399 84	$8 16	408 —					
	11	Chic. Metal Reclam. Co.	16	2	4,126 20	105 80	4,232 —					
	13	N.W. Copper & Brass Co.	17	3	4,538 84	140 38	4,679 22					
	13	Galena Zinc Co.	18	4	57 92		57 92					
	16	Minn. Aluminum Co.	19	5	626 69	19 38	646 07					
	16	Payroll	20		6,494 28				6,494 28			
	18	St.Paul Scrap Co.	21	6	480 20	9 80	490 —					
	18	Zenith Iron Co.	22	7	4,398 24	89 76	4,488 —					
	21	National Lead Co.	23	8	47 06	48	47 54					
	21	N.W. Copper & Brass Co.	24	9	62 73	1 94	64 67					
	23	Payroll	25		6,608 71				6,608 71			
	23	Chic. Metal Reclam. Co.	26	12	436 74	10 04	446 78					
	24	Hennepin Quarries	27	11	98 08	3 03	101 11					
	25	Mpls. Gas Light Co.	28	10	399 —		399 —					
	27	Moulding Mach. Mfg. Co.	29	17	640 25	9 75	650 —					
	28	Union Brass & Metal Mfg. Co.	30	15	4,560 44	46 06	4,606 50					
	28	Western Aluminum Distrib. Co.	31	14	638 55	6 45	645 —					
	28	Superior Blast Furnaces	32	16	4,059 45	125 55	4,185 —					
	30	Chicago Iron Co.	33	18	1,068 01	32 10	1,100 11					
	30	Payroll	34		6,723 15				6,723 15			
	31	Twin City Construction Co.	35		10,000 —					10,000 —	12	Buildings
	31	Petty Cashier	36		99 50					50 —	64	General Expense
										20 —	36	Postage—Sales Office
										20 —	37	Postage—Gen'l. Office
										5 —	7	Stores
										4 50	63	Misc. Sales Expense
	31	Mpls. & St.Louis Ry. Co.	37		527 90					527 90	30	Freight Payable
					$101,696 16	$608 68	$51,046 92		$33,130 52	$18,127 40		
					1	56	23		25			

we are paying for purchase invoice #1 which was for $408, but subject to a discount of $8.16 for cash in ten days. We debit the Independent Oil Company for the full amount of the invoice by writing that amount in the accounts-payable column; we credit cash for the actual amount of the check, $399.84, and cash discount offered on purchases for $8.16.

The treatment of check #36 to the petty cashier has already been described. By check #37 we extinguish the obligations for freight charges as recorded in the invoice register.

10. *Journal.*—Finally the entries in the journal of which the opening entries have already been discussed. The journal becomes a book in which to treat miscellaneous transactions not assignable to the specialized books and in which to set forth, explain and show authority for the transfer entries used in closing the books. We shall suppose the following five miscellaneous transactions, three of which are to be recorded in the journal and two of which are cash transactions, additional to those previously listed.

July 10.—Receive the Brickstaff Company's 30-day note for $1,500 in full of account, the note-bearing interest at 6 per cent per annum.

July 20.—Receive notice that the Brickstaff Company has confessed insolvency and that a meeting of the creditors has been called.

July 27.—Receive Gardner Hardware Company's note at 30 days from July 17 for $61.36 in full of invoice of that date.

July 31.—In a composition with its creditors the Brickstaff Company pays seventy-five cents on the dollar. Received the trustee's check for 75 per cent of their note and accrued interest.

July 31.—Discount the Gardner Hardware Company's note at the bank, proceeds credited.

The first case is simple and is left to the reader as also is the third (see journal). In the second case, we receive nothing and give nothing. But the debt has changed to the doubtful class and we debit doubtful debts and credit notes receivable to record the re-classification.

In the fourth case, the amount of our claim, principal and accrued interest is $1,505.25. We receive a check for 75 per cent of this or $1,128.94. In the cash book, we indicate a debit to cash and a credit to doubtful debts of that amount; in the journal, we make an adjusting entry to transfer the uncollectible balance of the note of $1,500, or $371.06, from doubtful debts to bad debts.

The last transaction is recorded wholly in the cash-receipts book. "Notes receivable discounted" is credited for the face, $61.36, instead of "notes receivable" so as to defer the latter credit until maturity of the note and in the meantime make our ledger accounts remind us of our contingent liability as endorser.

11. *Posting.*—Posting to the detail ledgers should occur day by day in order to keep these accounts up to date. Only one detail ledger, the accounts-receivable ledger, is reproduced here. We shall leave the

reader to compare in detail the entries affecting customers' accounts in the sales book, cash book and journal with the corresponding items in those customers' account. The ledger page numbers in those media and the corresponding "S," "C" and "J" page numbers in the ledger accounts, which are used as posting checks, will enable him to do this readily. We shall simply point out that the items in the accounts have been posted in chronological order and that after each new posting the new account balance has been computed and written in the third or "balance" column.

12. *Posting to the general ledger.*—Except for the miscellaneous columns this posting is done almost entirely by posting column totals. Before posting from any columnar page, it is necessary to foot each column, to add all the debit footings together and all the credit footings together and to see that the two totals are equal.

The reader will observe that the page to which a column total has been posted is always indicated by inserting the general ledger page below the footing in question. The postings from all but the journal may very well be left to the reader to trace.

Items are posted from the journal to the general ledger. But it will be noticed that in two instances there is a double posting of an item, once to the controlling account in the general ledger and once to the individual account in the accounts-receivable ledger. The purpose of this double posting is to have both

ledgers balance. This procedure involves two entries in the controlling account of the general ledger, and multiplies entries in this account. This result is sometimes avoided by the use of a columnar journal allowing a footing of the several items which enter into a controlling account.

13. *Trial balance before adjusting and closing.*—We are now ready to test the accuracy of our posting by means of a trial balance. Altho it is unnecessary to close the books until December 31 or June 30, the next year, we nevertheless shall close them at July 31 of this year, in order to illustrate the process. Hence we shall take a trial balance of balances on an analytical working sheet for convenience in the statement compilation to follow.

In our illustrative ledger, as shown, all the entries marked in the explanation columns with the names of opposing accounts, except those marked "P. W. & A., Vendors," and all "balances brought down" and "inventories brought down" were made in the subsequent adjusting and closing process and are not included in the trial balance that we are taking at this point. We shall leave it to the reader to verify the balances exhibited in the trial balance (see Analytical Working Sheet, page 387).

14. *Adjustments preparatory to closing.*—After proving the trial balance, our next concern before making statements or closing the books is to ascertain and insert the omitted items and the inventories.

Investigation shows that on the basis of the month's

payroll we have incurred a premium expense for liability insurance of $390.46, which we insert in the adjustments column (see working sheet), also in the adjustments-credit column opposite "accrued liability insurance payable."

In like manner, we find omission of Parker's monthly salary of $200 as production manager, which we insert opposite "salaries—foundry office," of Webb's monthly salary of $175 as sales manager, which we insert opposite "salaries—sales office" and of Anderson's salary of $150 as chief accountant, which we insert opposite "salaries—general office." Their total of $525, we insert opposite "accrued payroll" in the adjustments-credit column.

In like manner, we make insertions for accrued interest on bonds, estimated lighting expense and accrued taxes for July. The insertions are made in the adjustments-debit column as expenses or shares of income and in the adjustments-credit column as liabilities.

We also make allowances for depreciation and repairs, on a basis with which the reader will not be wearied, as follows: depreciation of iron foundry apparatus $1,596.20, of brass foundry, $51.50, of aluminum foundry $2, of miscellaneous products $10.42, of cupola $87.92, of welding apparatus $29.22, of pattern shop apparatus $86.46, of air blast apparatus $17.14—total for all apparatus $2,003.06; depreciation of building $123.46, of foundry office equipment $5, of sales office equipment, $8.73, of general

office equipment $6—total for all depreciations $19.73. These we insert in one section as debits or expenses, in the other as credits or reserves for depreciation.

Besides those accounts which naturally contribute their balances to the assets column we find: Unexpired fire insurance $164.80, postage stamps in the sales office $5, postage stamps in the general office $8, and $3.57 of unexpired cash discounts offered us on purchase invoices, all of which we insert in the assets and economic-summary column.

15. *Stores records.*—A record of production kept in the foundry office shows the following:

Beginning Inventory			Production	Deliveries	Closing Inventory	
Kind	Quantity lbs.	Cost	Quantity lbs.	Quantity lbs.	Quantity lbs.	Cost
Iron Castgs.	203,428	$8,700.48	1,540,080	1,563,964	179,544	$4,721.28
Brass "	251.14	50.58	27,220	27,303.5	167.64	29.71
Aluminum	93.42	119.34	1,752	1,800	45.42	156.72
Misc. Prod.	87.787.4	849.94	6,424	34,394	59,317.4	444.64
Patterns		122.66	.....	.....	.....	96.22
		$9,843.00				$5,448.57

Materials Used in Making Iron Castings

	lbs.		
Pig Iron	1,105,510	cost	$ 7,710.85
Iron Scrap	824,770	"	4,377.85
Steel Scrap	177,000	"	757.70
Limestone	72,640	"	45.40
Total	2,179,920	"	$12,891.80
Defects, Gates and Spruce	490,398	"	3,113.61
Shrinkage	149,442		
Net Production	1,540,080		$ 9,778.19

Materials Used in Making Brass Castings

Brass	36,838	cost	$ 5,601.87
Phosphor Copper	165	"	39.60
Lead	897		47.03

Materials Used in Making Brass Castings

Tin	5		2.55
Copper	888		142.85
Total	38,793	"	$ 5,833.90
Defective	11,409	"	$ 1,697.14
Shrinkage	164		
Net Prod.	27,220		$ 4,136.76

Materials Used in Making Aluminum Castings

Aluminum Ingot	50	cost	$ 19.00
Aluminum Scrap	3,602	"	812.28
Zinc	666½	"	40.03
Total	4,318½	"	$ 871.31
Defective Scrapped	2,482½		510.81
Shrinkage	84		.....
	1,752		$ 360.50

Materials Used in Making Misc. Products

Iron Scrap	6,424 lbs.	cost	$40.79

Consumption of Oil in Making Molds and of Coke

	Oil Quantity lbs.	Cost	Coke Quantity lbs.	Cost
Iron Castings	1,427	$743.53	191,885	$ 633.22
Brass Castings	25	13.03	4,787.9	15.80
Aluminum Castings	1	.52	830.3	2.74
Misc. Products	1	.52	60.6	.20
Welding			3,845.5	12.69
Cupola			75,324.25	248.57
Power				
	1,454	$757.60	326,733.55	$1,078.22

From this record, in conjunction with the beginning inventories of materials and the record of purchases and record of issuance of stationery and supplies, ($54.40 to the foundry office, $20 to the sales office and $20 to the general office) we ascertain a stores inventory costing $20,164.09, and total stores consumption costing $16,246.46. Accordingly we distribute the stores balance between "assets" and "expense." The valuation of the finished goods inven-

tory, we can get only when our compilation of costs is complete.

Having made our insertions for adjustments and inventories, we bring everything in the trial balance over into the economic-summary and balance sheet columns. In what follows, the reader should keep the expense distribution sheet constantly before him.

16. *Distribution of expenses.*—Next, we proceed to distribute the "expenses," among the various expense classes indicated by the columnar headings to the right. Most of these indicate their assignment by their names. The above given record of production determines the material distribution. On the basis of values and specific policy premiums, the expired fire insurance is distributed as indicated on that line. On the basis of payroll costs, the liability insurance is distributed as shown on that line.

Depreciation of building and taxes on land and buildings are assigned to building expense. This is totaled and the total, $213.26, is distributed on the basis of floor-space occupied to cupola, pattern, and so on as indicated to the right.

General foundry expense aggregates $379.40. This is another "over-head" expense of a supervisory character. We have chosen total labor cost, direct and indirect, as the basis of which to apportion this among the other cost classes. This method illustrates a second basis of distributing "over-head."

Power expense aggregates $439.24. It is appor-

tioned on the basis of power used, 40 per cent to air expense, 27.5 per cent to cupola and 32.5 per cent to welding.

Air expense now shows a total of $193.64, which, since the air blast is used altogether in making molds for iron castings, is assigned to iron castings.

The cupola cost complete shows a total cost of $13,048.72 for molten metal poured into molds for iron castings. This, however, is the net after deducting the material cost assigned to "gates and spruce" and defective castings, which, except for the 6,424# used in making miscellaneous products, went back into the inventory of iron scrap. Only the net material cost was inserted in this column. The total of cupola cost is transferred to iron castings.

Welding shows a total cost of $209.64. The labor, materials and time spent on welding jobs for customers is such that $30.12 of cost is assigned to them, the remainder of $179.52 being the cost of patching up otherwise defective castings.

The total pattern cost is found to be $2,075.86, of which the labor and time spent on patching up old, worn and broken stock patterns warrants the assignment of $624.32 to the cost of patterns made for customers.

The total cost of good iron castings made is now found to be $40,499.20 or 2.62968¢ per pound. In like manner, the total cost of the 27,220 lbs. of good brass castings made is found to be $4,824.05 or 17.-

7224¢ per pound; of 1,752 lbs. of aluminum castings $604.53 or 34.505¢; and 6,424 lbs. of miscellaneous products $68.80 or 1.071¢ per pound.

17. *Summary of cost and income.*—Thus the total cost of finished goods made during July is computed at $47,478.24. On July 1, there were finished goods on hand which cost $9,843. Turning now to our economic summary we first ascertain the individual gross profit on sales of each commodity handled. We do not show the schedules of the various expenses as the same data can be obtained from our expense distribution sheet.

The details of preparing the economic summary need not be discussed, as they will be apparent from an examination of the form on page 243. The balance sheet is equally self-explanatory.

18. *Closing entries.*—We are also ready to draft the closing entries. These appear on pages 2 to 5 of the journal. Comparison of them with the columns of the working sheet shows how this working sheet guides the work of drafting these entries.

In posting these closing entries the names of the opposing accounts have invariably been inserted, partly to guide the reader, mostly to make each of the major operating accounts carry its own explanation.

Finally, after the posting of the closing entries has been completed the general ledger accounts affected have been totaled and ruled off to show that they have been closed; balances and inventories were in-

serted where necessary to balance the accounts, and then brought down on the opposite side under date of August 1. A trial balance after closing completes the work. This trial balance, it will be observed, is practically the balance sheet.

In the pages which follow are given the journal ledgers, and the statements produced by closing the books which are referred to in this chapter.

	July 1				
	Subscription to Capital Stock		32	$147,500 —	
	Capital Stock		31		$147,500 —
	To record the receipt of subscriptions to 2,950 shares of capital stock as per the Subscription Book p 1.				
	Land		11	10,000 —	
	Buildings		12	29,400 —	
	Machinery		14	30,000 —	
	Foundry Office Equipment		17	500 —	
	Sales Office Equipment		18	750 —	
	General Office Equipment		19	600 —	
	Tools		16	12,000 —	
	Cash in Bank (posted)			4,000 —	
	Petty Cash		2	100 —	
	Accounts Receivable		3	64,000 —	
	Consisting of the following balances:				
	The Brickstaff Co.	$1,500 —	1		
	The Emerson-Brantingham Co.	15,000 —	2		
	The Exclusive Heater Supply Co.	1,500 —	3		
	The Homer Furnace Co.	1,000 —	5		
	The Knight Air Heater Co.	1,500 —	6		
	The Minneapolis Steel & Mach. Co.	30,000 —	7		
	The Toro Motor Co.	13,500 —	11		
	Notes Receivable		4	4,000 —	
	Stores per inventory sheet		7	8,812.16	
	Moulding Sand		8	2,224.84	
	Finished Goods per inventory sheet		6	9,343 —	
	Fire Insurance		9	220 —	
	Liability, Insurance Deposit		10	6,000 —	
	Good-will		21	7,000 —	
	Reserve for Bad Debts		5		600 —
	Parker, Webb & Anderson, Vendors		33		188,850 —
	To record the receipt of the titles and assignments of the above-enumerated assets of Parker, Webb & Anderson pursuant to the terms of the agreement with them as recorded in the Minute Book page 3				
	— *July 1* —				
	Parker, Webb & Anderson, Vendors		33	63,850 —	
	Mortgage Bonds Payable		22		20,000 —
	Accounts Payable		23		23,800 —
	Consisting of the following balances:				
	The Chicago Blast Furnaces.	$5,500 —			
	The Chicago Iron Co.	1,000 —			
	The Chicago Metal Reclamation Co.	5,000 —			
	The Hennepin Quarries.	1,500 —			
	The Independent Oil Co.	1,000 —			
	The Metal Products Co.	500 —			
	The Minnesota Aluminum Co.	500 —			
	The National Lead Co.	550 —			
	The N.W Copper & Brass Co.	750 —			
	The Superior Blast Furnaces	1,500 —			
	The Zenith Iron Co.	6,000 —			
	Notes Payable		24		3,000 —
	Accrued Payroll		25		10,000 —
	Wages unclaimed		26		650 —
	Accrued Bond Interest		27		500 —
	Accrued Taxes		28		300 —
	Accrued Liability Insurance Payable		29		5,600 —
	To record the assumption by this corporation of the above-enumerated liabilities in part consideration for the above listed assets, per terms of the aforesaid agreement.				
	— *July 1* —				
	Parker, Webb & Anderson, Vendors		33	125,000 —	
	Subscription to Capital Stock		32		125,000 —
	To record the application of the balance due P., W. & A., Vendors, to the payment in full of the subscriptions of P., W. & A. to Capital Stock.				

	July 10			
	Notes Receivable	4	$1,500 —	
	Accounts Receivable	3		$1,500 —
	Brickstaff Co.	AR1		
	Rec'd their note at 30 days in full of acct; interest at 6%			
	— *20* —			
	Doubtful Debts	3a	1,500 —	
	Notes Receivable	4		1,500 —
	To transfer Brickstaff Company's note to Doubtful Debts class because they are insolvent.			
	— *27* —			
	Notes Receivable	4	61.36	
	Accounts Receivable	3		61.36
	Gardner Hardware Co.	AR4		
	Rec'd their note at 30 days, dated July 17. in full of account.			
	— *31* —			
	Bad Debts	55	371.06	
	Doubtful Debts	3a		371.06
	To transfer the uncollectible portion of the Brickstaff Company's debt to Bad Debts.			
	Adjusting and Closing Entries July 31			
	— *31* —			
	Liability Insurance	38	390.46	
	Liability Insurance Payable	29		390.46
	To take into account the additional cost of protection against liability to employes incurred by reason of operations during July.			
	— *31* —			
	Interest on Bonds	59	100 —	
	Accrued Interest on Bonds	27		100 —
	To adjust for additional bond interest accrued during July at 6% per annum.			
	— *31* —			
	Lighting Expense	65	86.78	
	Accrued Lighting Expense payable	26a		86.78
	To adjust for estimated lighting expense incurred			
	— *31* —			
	Taxes	66	70 —	
	Accrued Taxes	28		70 —
	To adjust for next year's estimated taxes apportioned to July			
	— *31* —			
	Foundry Office Salaries	60	200 —	
	Sales Office Salaries	61	175 —	
	General Office Salaries	62	150 —	
	Accrued Payroll	25		525 —
	To adjust for salaries of Parker, Production Mgr., Webb, Sales Mgr., and Anderson, Chief Accountant and Gen'l Office Mgr.			
	— *31* —			
	Depreciation of Office Equipment	67	19.73	
	Depreciation of Machinery	68	2,003.06	
	Depreciation of Building	69	123.46	
	Reserve for Depreciation of Office Equipment	20		19.73
	Res. for Deprec'n of Machinery	15		2,003.06
	Res. for Deprec'n of Building	13		123.46
	To take into account the allowances for depreciation and repairs of these depreciable assets.			
	— *31* —			
	Building Expense	46	213.26	
	Fire Insurance (on bldg.)	9		19.80
	Taxes (on land & bldg.)	66		70 —
	Depreciation of Bldg.	69		123.46
	To make up this account showing the cost of operating and maintaining the building.			

—31—			
General Foundry Expense	70	$379.40	
Stores	7		$54.40
Depreciation of Office Equipment	67		5.—
General Foundry Salaries	60		320.—
To make up account showing the cost of operating the foundry office and exercising general supervision over production.			
—31—			
Power Expense	71	439.24	
Stores (coke)	7		165.—
Direct Labor-Power	46a		150.—
Depreciation of Machinery	68		122.20
General Foundry Expense (Power plant)	70		2.04
To show the total cost of power.			
—31—			
Air Expense	72	193.64	
Fire Insurance	9		.80
Depreciation of Machinery Air-blast apparatus	68		17.14
Power Expense	71		175.70
To show cost of air blast.			
—31—			
Cupola	73	13,048.72	
Stores	7		10,026.76
Fire Insurance	9		8.34
Direct Labor-Cupola	43		2,724.45
Depreciation of Machinery	68		87.92
Liability Insurance	38		38.78
Building Expense	46		4.60
General Foundry Expense	70		37.09
Power Expense	71		120.78
To make up account showing cost of molten metal for making iron castings.			
—31—			
Welding, Manufacturing	74	209.64	
Stores	7		12.60
Liability Insurance	38		2.36
Direct Labor-Welding	44		163.16
Depreciation of Machinery	68		29.22
General Foundry Expense	70		2.21
To make up account showing cost of (welding done)			
—31—			
Patterns, Manufacturing	75	2,075.86	
Fire Insurance	9		2.44
Liability Insurance	38		16.84
Direct Labor-(Patterns)	45		1,837.59
Indirect Labor— "	45a		64.42
Superintendence	48		20.—
Depreciation of Machinery	68		86.46
Building Expense	46		22.22
General Foundry Expense	70		25.89
To make up account showing cost of making and repairing patterns			
—31—			
Iron Castings, Manufacturing	78	40,499.20	
Stores (Used in making moulds)	7		1,376.75
Fire Insurance	9		23.—
Liability Insurance	38		320.80
Direct Labor—Iron Castings	39		19,655.14
Indirect Labor— " "	39a		2,468.14
Superintendence	48		300.—
Lighting Expense	65		86.78
Depreciation of Machinery	68		1,596.20
Building Expense	46		182.24
General Foundry Expense	70		301.19
Power Expense	71		142.76
Air Expense	72		193.64
Cupola Cost of molten metal	73		13,048.72
Welding, Manufacturing	74		179.52
Patterns, Manufacturing	75		624.32
To make up Iron Castings Manufacturing Account showing cost of 1,540,080 lbs. of good castings made.			

	—31—			
Brass Castings, Manufacturing		76	$4,824.05	
Stores		7		$4,165.59
Fire Insurance		9		.24
Liability Insurance		38		8.22
Direct Labor—Brass Castings		40		410.63
Indirect Labor— " "		40a		155.94
Superintendence		48		20.—
Depreciation of Machinery		68		51.50
Building Expense		46		4.20
General Foundry Expense		70		7.73
To make up Brass Castings Mfg. Acct, showing cost of 27,220 lbs. of good castings made.				
—31—				
Aluminum Castings, Manufacturing		77	604.53	
Stores		7		363.76
Fire Insurance		9		.12
Liability Insurance		38		3.22
Direct Labor—Aluminum Castings		41		185.50
Indirect Labor— " "		41a		36.90
Superintendence		48		10.—
Depreciation of Machinery		68		2.—
General Foundry Expense		70		3.03
To make up Aluminum Castings Mfg. Acc't, showing cost of 1,752 lbs. of good castings.				
—31—				
Miscellaneous Products, Manufacturing		79	68.80	
Stores		7		41.51
Fire Insurance		9		.46
Liability Insurance		38		.24
Direct Labor—Misc. Products		42		15.95
Depreciation of Machinery		68		10.42
General Foundry Expense		70		.22
To make up Misc. Products, Mfg. Acct, showing the cost of 6,424 lbs of such products.				
—31—				
Finished Goods		6	47,478.24	
Welding, Manufacturing Cost of welding sold		74		30.12
Patterns " " " patt. made for others		75		1,451.54
Iron Castings "		78		40,499.20
Brass " "		76		4,824.05
Alum. Castings "		77		604.53
Misc. Products "		79		68.80
To close with these manufacturing accounts and transfer their balances, which represent the cost of goods finished during July, into Finished Goods Acct.				
—31—				
Sales, Iron Castings		49	53,446.50	
Sales, Brass Castings		50	5,638.02	
Sales, Aluminum Castings		51	691.05	
Sales, Misc. Products		52	354.97	
Sales, Welding Service		53	47.58	
Sales, Patterns		54	2,003.48	
Trading		80		62,181.60
To close these sales accounts into Trading.				
—31—				
Trading		80	51,872.67	
Finished Goods		6		51,872.67
To transfer from Fin. Goods to Trading Acc't the cost of finished goods sold and delivered, being the cost of				
1,563,964 lbs. Iron Castings	$44,478.25			
27,303½ " Brass "	4,844.92			
1,800 " Aluminum "	708.20			
34,394 " Misc. Products	333.20			
Welding Service	30.12			
Patterns Delivered	1,477.98			

	—31—			
	Marketing Expense	81	$ 373.23	
	Stores	7		$ 20 —
	Postage—Sales Office	36		15 —
	Salaries—Sales Office	61		325 —
	Misc. Sales Expense	63		4.50
	Deprec'n of Office Equipment.	67		8.73
	To make up account showing total cost of selling goods and administering the orders.			
	—31—			
	General Expense	82	388—	
	Stores	7		20 —
	Postage—General Office	37		12 —
	Salaries—General Office	62		300 —
	Misc. General Expense	64		50 —
	Deprec'n of Office Equipment.	67		6 —
	To make up account showing the total expenses that are general to the entire business.			
	—31—			
	Cash Discount Offered on Sales	57	16	
	Disc't on Notes (Receivable Discounted)	58		16
	To close Disc't on Notes acc't into Cash Disc't off on Sales, being the am't of cash discounts on customers' accounts, right to collect which was transferred to the bank in discounting the note.			
	—31—			
	Trading Bal. of Acct.	80	10 308.93	
	Profit and Loss	83		10,308.93
	To close into P. & L. the balance of Trading Acc't., which represents the gross turnover profit on goods sold.			
	—31—			
	Cash Discount Offered on Sales	57	1.07	
	Profit and Loss	83		1.07
	To close this balance representing gain to the business by reason of the fact that certain customers failed to take certain discounts offered them.			
	—31—			
	Profit and Loss	83	761.23	
	Marketing Expense	81		373.23
	General Expense	82		388 —
	To close these two accounts into P. & L.			
	—31—			
	Profit and Loss	83	103.83	
	Interest on Bonds	59		100 —
	Cash Discount Offered on Purchases (Lost)	56		3.83
	To close into P. & L. these two accounts, which represent shares in income going to creditors for capital furnished by them.			
	—31—			
	Profit and Loss	83	9 441.94	
	Undivided Profits	34		9,444.94
	To transfer to Undivided Profits acc't the balance of Profit and Loss account, which represents the net income divisible among shareholders.			
	—31—			
	Undivided Profits	34		
	Dividend No. 1	35	2,950—	
	The Board of Directors, as recorded in the Minute Book, page 6, declare out of Undivided Profits a dividend of $2 per share to shareholders of record.			2,950 —
	—31—			
	Reserve for Bad Debts	5	371.06	
	Bad Debts	55		371.06
	To close Bad Debts Acc't into the Reserve.			

ACCOUNTS RECEIVABLE LEDGER

1. The Brickstaff Co.

July	1	Bal.		$1,500	—			$1,500	—	July	1	Bal.		$15,000	—			$15,000	—
"	10	Note	J.2			$1,500	—	0	—	"	2		C.1			$15,000	—	0	—
										"	3		S.1	5,402	20			5,402	20
										"	10		S.1	4,985	64			10,387	84
										"	13		C.1			5,402	20	4,985	64
										"	17		S.1	5,068	40			10,054	04
										"	20		C.1			4,985	64	5,068	40
										"	25		S.1	3,929	78			8,998	18
										"	27		C.1			5,068	40	3,992	78

3. The Exclusive Heater Supply Co.

July	1	Bal.		$1,500	—			$1,500	—
"	6		C.1			$1,500	—	0	—

4. The Gardner Hardware Co.

July	17	S.B.	S.1	$61	36			$61	36
"	27	Note	J.2			$61	36	0	—

5. The Homer Furnace Co.

July	1	Bal.		$1,000	—			$1,000	—
"	3		C.1			$1,000	—	0	—

6. Knight Air Heater Co.

July	1	Bal.		$1,500	—			$1,500	—
"	3		C.1			$1,500	—	0	
"	10		S.1	3,898	28			3,898	28
"	20		C.1			3,898	28	0	—

7. Minneapolis Steel & Machinery Co.

July	1	Bal.		$30,000	—			$30,000	—
"	1		C.1			$15,000	—	15,000	—
"	7		S.1	3,893	95			18,893	95
"	8		C.1			15,000	—	3,893	95
"	14		S.1	4,125	48			8,019	43
"	17		C.1			3,893	95	4,125	48
"	18		S.1	3,957	18			8,083	66
"	24		C.1			4,125	48	3,957	18
"	28		C.1			3,957	18	0	—

8. The St. Cloud Mfg. Co.

July	29		S.1	$2,514	21			$2,514	21

9. Morison Hardware Co.

July	22		S.1	$47	19			$47	19

10. Raymer Hardware Co.

July	6		S.1	$72	80			$72	80
"	16		C.1			$72	80	0	—

11. Toro Motor Co.

July	1	Bal.		$13,500	—			$13,500	—
"	3		S.1	6,145	80			19,645	80
"	6		C.1			$13,500	—	6,145	80
"	7		S.1	6,193	86			12,339	66
"	13		C.1			6,145	80	6,193	86
"	15		S.1	6,299	45			12,493	31
"	17		C.1			6,193	86	6,299	45
"	21		S.1	6,151	70			12,451	15
"	25		C.1			6,299	45	6,151	70
"	31		C.1			6,151	70	0	—

12. Warner Hardware Co.

July	14		S.1	$63	40			$63	40

GENERAL LEDGER

1

CASH IN BANK

July	31		C. 1	$145,822	94	July	31		C. 1	$101,696	16
						"	31	Balance carried down	5	$44,126	78
				$145,822	94					$145,822	94
Aug.	1	Bal. bro't down		$44,126	78						

2

PETTY CASH

July	1		J. 1	$100	—						

3

ACCOUNTS RECEIVABLE

July	1	P., W. & A, Vendors	J. 1	$64,000	—	July	10		J. 2	$1,500	—
July	31		S. 1	62,809	68	"	27		J. 2	61	36
						"	31		C. 1	118,694	74
				$126,809	68	"	31	Balance carried down		$6,553	58
Aug.	1	Bal. bro't down		6,553	58					$126,809	68

3a

DOUBTFUL DEBTS

July	20		J. 2	$1,500	—	July	31		J. 2	$371	06
						"	31		C. 1	1,128	94
				$1,500	—					$1,500	—

4 **NOTES RECEIVABLE**

July	1	P.,W. & A, Vendors	J. 1	$4,000	—	July	20		J. 2	$1,500	—
"	10		J. 2	1,500	—					4,061	36
"	27		J. 2	61	36	"	31	Balance carried down			
				$5,561	36					$5,561	36
Aug.	1	Bal. bro't down		$4,061	36						

4a **NOTES RECEIVABLE DISCOUNTED**

						July	31		C. 1	$61	36

5 **RESERVE FOR BAD DEBTS**

July	31	Bad Debts	J. 5	$371	06	July	31		J. 1	$ 600	—
"	31	Balance carried down		228	94						
				$600	—					$600	—
						Aug.	1	Bal. bro't down		$228	94

6 **FINISHED GOODS**

July	1	P.,W. & A, Vendors	J 1	$9,843	—	July	31	Trading	J. 4	$51,878	67
"	31	Welding, Mfg.	J. 4	30	12	"	31	Inventory		5,448	54
"	31	Patterns, Mfg.	J. 4	1,451	54						
"	31	Iron Castings, Mfg.	J. 4	40,499	20						
"	31	Brass Castings, Mfg.	J. 4	4,824	05						
"	31	Aluminum Castings, Mfg.	J. 4	604	53						
"	31	Misc. Products, Mfg.	J. 4	68	80						
				$57,321	24					$57,321	24
Aug.	1	Inventory, bro't down		$5,448	57						

7 **STORES**

July	1	P.,W.& A., Vendors	J. 1	$ 8,812	16	July	31	Foundry office Expense	J. 3	$ 54	40
"	31		I. 1	27,593	39	"	31	Power Expense	J. 3	165	—
"	31		C. 1	5	—	"	31	Cupola	J. 3	10,026	76
						"	31	Welding,Mfg.	J. 3	12	60
						"	31	Iron Castings	J. 3	1,376	75
						"	31	Brass Castings	J. 4	4,165	50
						"	31	Aluminum Castings	J. 4	363	76
						"	31	Misc. Products	J. 5	41	51
						"	31	Marketing Expense	J. 5	20	—
						"	31	General Expense		20	—
						"	31	Inventory		20,164	09
				$ 36,410	55					$ 36,410	55
Aug.	1	Inventory, bro't down		$ 20,164	09						

8 **MOLDING SAND**

July	1	P.,W.& A., Vendors	J. 1	$ 2,224	84							

9 **FIRE INSURANCE**

July	1		J. 1	$ 220	—	July	31	Building Expense	J. 2	$ 19	80
						"	31	Air Expense	J. 3		80
						"	31	Cupola	J. 3	8	34
						"	31	Patterns, Mfg.	J. 3	2	44
						"	31	Iron Castings, Mfg.	J. 3	23	—
						"	31	Brass Castings, Mfg.	J. 4		24
						"	31	Aluminum " "	J. 4		12
						"	31	Misc. Products "	J. 4		46
						"	31	Balance unexpired		164	80
				$ 220	—					$ 220	—
Aug.	1	Bal. bro't down		$ 164	80						

10 **LIABILITY INSURANCE DEPOSIT**

July	1	P.,W.& A., Vendors	J. 1	$ 6,000	—							

11 **LAND**

July	1	P., W. & A., Vendors	J. 1	$10,000	—							
"	6		C. 1	7,500	—							

12 **BUILDINGS**

July	1	P., W. & A., Vendors	J. 1	$29,400	—							
"	31		C. 1	10,000	—							

13 **RESERVE FOR DEPRECIATION OF BUILDINGS**

						July	31	Deprec'n of Buildings	J. 2	$123	46	

14 **MACHINERY**

July	1	P., W. & A., Vendors	J. 1	$30,000	—							
"	23		L. 1	646	75							

15 RESERVE FOR DEPRECIATION OF MACHINERY

						July	31	Deprec'n of Machinery	J. 2	$2,003	06

16 TOOLS

July	1	P., W. & A., Vendors	J. 1	$12,000	—								

17 FOUNDRY OFFICE EQUIPMENT

July	1	P., W. & A., Vendors		$500	—								

18 SALES OFFICE EQUIPMENT

July	1	P., W. & A., Vendors	J. 1	$750	—	July	31	Bal. carried down				$872	50
"	27		I. 1	122	50								
				$872	50							$872	50
Aug.	1	Bal. brought down		$872	50								

19 **GENERAL OFFICE EQUIPMENT**

July	1	P., W. & A., Vendors	J. 1	$600	—								

20 **RESERVE FOR DEPRECIATION OF OFFICE EQUIPMENT**

						July	31	Deprec'n of office equip.	J. 2	$19	73		

21 **GOOD-WILL**

July	1	P., W. & A., Vendors	J. 1	$7,000	—								

22 **MORTGAGE BONDS PAYABLE** P. & A.

						July	1	P., W. & A., Vendors	J. 1	$20,000	—		

23 **ACCOUNTS PAYABLE**

July	31	Balance carried down	C. 1	$51,046	92	July	1	P., W. & A., Vendors	J. 1	$23,800	—
"	31			1,203	90	"	31		I. 1	28,450	82
				$52,250	82					$52,250	82
						Aug.	1	Balance bro't down		$1,203	90

24 **NOTES PAYABLE**

						July	1	P., W. & A., Vendors	J. 1	$3,000	—

25 **ACCRUED PAYROLL**

July	31	Balance carried down	C. 1	$33,130	52	July	1	P., W. & A., Vendors	J. 1	$10,000	—
"	31			6,032	30	"	31		P.S.1	23,637	82
						"	31	Sundries	J. 2	525	—
				$39,162	82					$39,162	82
						Aug.	1	Balance bro't down		$6,032	30

26 **WAGES UNCLAIMED**

						July	31	P., W. & A., Vendors	J. 1	$650	—

26a **ACCRUED LIGHTING EXPENSE PAYABLE**

						July	31	Lighting Expense	J. 2	$86	78

27

ACCRUED BOND INTEREST

July	31	Balance carried down		$600	—	July	1	P., W. & A., Vendors	J. 1	$500	—
						"	31	Int. on Bonds	J. 2	100	—
				$600	—					$600	—
						Aug.	1	Bal. bro't down		$600	—

28

ACCRUED TAXES

July	31	Balance carried down		$370	—	July	1	P., W. & A., Vendors	J. 1	$300	—
						"	31	Taxes, proportion	J. 2	70	—
				$370	—					$370	—
						Aug.	1	Bal. bro't down		$370	—

29

ACCRUED LIABILITY INSURANCE PAYABLE

July	31	Balance carried down		$5,990	46	July	31	P., W. & A., Vendors	J. 1	$5,600	—
						"	31	Liability Ins.	J. 2	390	46
				$5,990	46					$5,990	46
						Aug.	1	Bal. bro't down		$5,990	46

30

FREIGHT PAYABLE

July	31		C. 1	$527	90	July	31		I. 1	$527	90

31 **CAPITAL STOCK, AUTHORIZED**

						July	31		J. 1	$147,500	

33 **SUBSCRIPTION TO CAPITAL STOCK**

July	1		J. 1	$147,500	—	July	1	P., W. & A., Vendors	J. 1	$125,000	—
							1	Cash	C. 1	22,500	—
				$147,500	—					$147,500	—

33 **PARKER, WEBB & ANDERSON, VENDORS**

July	1	Sundry Liabilities		$63,350	—	July	1	Sundries	J. 1	$188,350	—
"	1	Subscription		125,000	—						
				$188,350	—					$188,350	—

34 **UNDIVIDED PROFITS**

July	31	Dividend No. 1, $2 per sh.		$2,950	—	July	31	P. & L.	J. 5	$9,444	94
"	31	Balance carried down		6,494	94						
				$9,444	94					$9,444	94
						Aug.	1	Balance bro't down		$6,494	94

35

DIVIDEND NO. 1

								July	31	Undivided Profits	J. 5	$2,950	

36

POSTAGE—SALES OFFICE

July	31		C. 1	$20	—	July	31	Marketing Expense	J. 5	$15	—
						"	31	Inventory		5	—
				$20	—					$20	—
Aug.	1	Inventory		$5	—						

37

POSTAGE—GENERAL OFFICE

July	31		C. 1	$20	—	July	31	General Expense	J. 5	$12	—
						"	31	Inventory		8	—
				$20	—					$20	—
Aug.	1	Inventory		$8	—						

38

LIABILITY INSURANCE

July	31	Accr. Liabil. Ins. Payable	J. 2	$390	46	July	31	Cupola	J. 3	$38	78
						"	31	Welding, Mfg.	J. 3	2	36
						"	31	Patterns, Mfg.	J. 3	16	84
						"	31	Iron Castings, Mfg.	J. 3	330	80
						"	31	Brass Castings, Mfg.	J. 4	8	22
						"	31	Alum. Castings, Mfg.	J. 4	3	22
						"	31	Misc. Products, Mfg.	J. 4		24
				$390	46					$390	46

39 **DIRECT LABOR, IRON CASTINGS**

July	31			P.S.1	$19,655	14	July	31	Iron Castings, Mfg.	J. 3	$19,655	14

39a **INDIRECT LABOR, IRON CASTINGS**

July	31			P.S.1	$2,463	14	July	31	Iron Castings, Mfg.		$2,463	14

40 **DIRECT LABOR, BRASS CASTINGS**

July	31			P.S.1	$410	63	July	31	Brass Castings, Mfg.	J. 4	$410	63

40a **INDIRECT LABOR, BRASS CASTINGS**

July	31			P.S.1	$155	94	July	31	Brass Castings, Mfg.		$155	94

41 DIRECT LABOR—ALUMINUM CASTINGS

July	31		P.S.1	$185	50	July	31	Aluminum Castings, Mfg.	J.4	$185	50

41a INDIRECT LABOR—ALUMINUM CASTINGS

July	31		P.S.1	$36	90	July	31	Aluminum Castings, Mfg.	J.4	$36	90

42 DIRECT LABOR—MISCELLANEOUS PRODUCTS

July	31		P.S.1	$15	95	July	31	Misc. Products, Mfg.	J.4	$15	95

43 DIRECT LABOR—CUPOLA

July	31		P.S.1	$2,724	45	July	31	Cupola	J.3	$2,724	45

44 **DIRECT LABOR, WELDING**

July	31			P.S.1	$163	16	July	31	Welding, Mfg.	J. 3	$163 16

45 **DIRECT LABOR, PATTERNS**

July	31			P.S.1	$1,837	59	July	31	Patterns, Mfg.	J. 3	$1,837 59

45a **INDIRECT LABOR, PATTERNS**

July	31			P.S.1	$64	42	July	31	Patterns, Mfg.	J. 3	$64 42

46 **BUILDING EXPENSE**

July	31	Fire Ins.		J. 2	$19	80	July	31	Cupola	J. 3	$4 60
"	61	Taxes		J. 2	70	—	"	31	Patterns, Mfg.	J. 3	22 22
"	31	Deprec'n of Bldg.		J. 2	123	46	"	31	Iron Castings, Mfg.	J. 3	182 24
							"	31	Brass Castings, Mfg.	J. 4	4 30
					$213	26					$213 26

46a

DIRECT LABOR—POWER

July	31			P.S.1	$150	—	July	31	Power Expense	J. 3	$150 —

47

AIR EXPENSE

July	31										

48

SUPERINTENDENCE

July	31			P.S.1	$350	—	July	31	Patterns, Mfg.	J. 3	$20 —
							"	31	Iron Castings, Mfg.	J. 3	300 —
							"	31	Brass Castings, Mfg.	J. 4	20 —
							"	31	Aluminum Castings, Mfg.	J. 4	10 —
					$350	—					$350 —

49

SALES—IRON CASTINGS

July	31	Trading		J. 4	$53,446	50	July	31		S. 1	$53,446 50

50 SALES—BRASS CASTINGS

July	31	Trading		J. 4	$5,638	02	July	31		S. 1	$5,638	02

51 SALES—ALUMINUM CASTINGS

July	31	Trading		J. 4	$691	05	July	31		S. 1	$691	05

52 SALES—MISCELLANEOUS PRODUCTS

July	31	Trading		J. 4	$354	97	July	31		S. 1	$354	97

53 SALES—WELDING SERVICE

July	31	Trading		J. 4	$47	58	July	31		S. 1	$47	58

54 SALES—PATTERNS

July	31	Trading	J. 4	$2,003	48	July	31		S. 1	$2,003	48

55 BAD DEBTS

July	31		J. 3	$371	06	July	31	Reserve for Bad Debts		$371	06

56 CASH DISCOUNTS OFFERED ON PURCHASES

July	31		L. 1	$616	08	July	31		C. 1	$608	68
						"	31	P. & L.	J. 5	3	83
						"	31	Balance, unexpired		3	57
				$616	08					$616	08
Aug.	1	Bal. bro't down		3	57						

57 CASH DISCOUNTS OFFERED ON SALES

July	31		C. 1	$561	94	July	31		S. 1	$623	08
"	31	Disc't on Notes (Rec. Disc't)	J. 5		18						
"	31	P. & L.	J. 5	1	07						
		Bal. unearned, carried down		64	91						
				$623	08					$623	08
						Aug.	1	Bal. bro't down		$64	91

58 DISCOUNT ON NOTES

July	31		C. 1	$—	16	July	31	Cash Disc't off on Sales	J. 5	$—	16

59 INTEREST ON BONDS

July	31	Accrued Bond Int.	J. 2	$100 —		July	31	P. & L. (adjustment)		$100 —

60 SALARIES—FOUNDRY OFFICE

July	31		P.S.1	$120 —		July	31	Foundry Office Expense	J. 3	$320 —
"	31	Accrued Payroll	J. 2	200 —						
				$320 —						$320 —

61 SALARIES—SALES OFFICE

July	31		P.S.1	$150 —		July	31	Marketing Expense	J. 5	$325 —
"	31	Accrued Payroll	J. 2	175 —						
				$325 —						$325 —

62 SALARIES—GENERAL OFFICE

July	31		P.S.1	$150 —	July	31	General Expense	J. 5	$300 —
"	31		J. 2	150 —					
				$300 —					$300 —

63 MISCELLANEOUS SALES EXPENSE

July	31		C. 1	$4 50	July	31	Marketing Expense	J. 5	$4 50

64 MISCELLANEOUS GENERAL EXPENSE

July	31		C. 1	$50 —	July	31	General Expense	J. 5	$50 —

65 LIGHTING EXPENSE

July	31	Accr. Lighting Expense	J. 2	$86 78	July	31	Iron Castings, Mfg.	J. 3	$86 78

66 **TAXES**

July	31	Accrued Taxes	J. 2	$70	—	July	31	Bldg. Expense	J. 2	$70	—

67 **DEPRECIATION OF OFFICE EQUIPMENT**

July	31	Reserve	J. 2	$19	73	July	31	Foundry Office Expense	J. 3	$5	—
						"	31	Marketing Expense	J. 5	8	73
						"	31	Gen'l Expense	J. 5	6	—
				$19	73					$19	73

68 **DEPRECIATION OF MACHINERY**

July	31	Reserve	J. 2	$2,003	06	July	31	Power Expense	J. 3	$122	20
						"	31	Air Expense	J. 3	17	14
						"	31	Cupola	J. 3	87	92
						"	31	Welding, Mfg.	J. 3	29	22
						"	31	Patterns, Mfg.	J. 3	86	46
						"	31	Iron Castings, Mfg.	J. 4	1,596	20
						"	31	Brass Castings, Mfg.	J. 4	51	50
						"	31	Aluminum Castg, "	J. 4	2	—
						"	31	Misc. Products, Mfg.	J. 4	10	42
				$2,003	06					$2,003	06

69 **DEPRECIATION OF BUILDING**

July	31	Reserve	J. 2	$123	46	July	31	Building Expense	J. 2	$123	46

70

GENERAL FOUNDRY EXPENSE

July	31	Stores	J. 3	$ 54	40	July	31	Power Expense	J. 3	$ 2	04
"	31	F.O.Salaries	J. 3	320	—	"	31	Cupola	J. 3	37	09
"	31	Deprec'n of Office Equip.	J. 3	5	—	"	31	Welding, Mfg.	J. 3	2	21
						"	31	Patterns, Mfg.	J. 3	25	89
						"	31	Iron Castings, Mfg.	J. 3	301	19
						"	31	Brass Castings, Mfg.	J. 4	7	73
						"	31	Aluminum " "	J. 4	3	03
						"	31	Misc. Products, "	J. 4		22
				$379	40					$379	40

71

POWER EXPENSE

July	31	Stores	J. 3	$165	—	July	31	Air Expense	J. 3	$175	70
"	31	Direct Labor – Power	J. 3	150	—	"	31	Cupola	J. 3	120	78
"	31	Deprec'n of Mach.	J. 3	122	20	"	31	Iron Castings, Mfg.	J. 3	142	76
"	31	F.O.Expense	J. 3	2	04						
				$439	24					$439	24

72

AIR EXPENSE

July	31	Fire Ins.	J. 3	$	80	July	31	Iron Castings, Mfg.	J. 3	$193	64
"	31	Deprec'n of Mach.	J. 3	17	14						
"	31	Power Expense	J. 3	175	70						
				$193	64					$193	64

73

CUPOLA (Cost of Molten Metal for Iron Castings)

July	31	Stores	J. 3	$10,026	76	July	31	Iron Castings, Mfg.	J. 3	$13,048	72
"	31	Fire Insurance	J. 3	8	34						
"	31	Liability Insurance	J. 3	38	78						
"	31	Direct Labor – Cupola	J. 3	2,724	45						
"	31	Deprec'n of Mach.	J. 3	87	92						
"	31	Building Expense	J. 3	4	60						
"	31	Foundry office Expense	J. 3	37	09						
"	31	Power Expense	J. 3	120	78						
				$13,048	72					$13,048	72

74

WELDING—MANUFACTURING

July	31	Stores	J. 3	$12	69	July	31	Iron Castings, Mfg.	J. 3	$179	52
"	31	Liability Insurance	J. 3	2	36	"	31	Finished Goods	J. 4	30	12
"	31	Direct Labor—Welding	J. 3	163	16						
"	31	Deprec'n of Mach.	J. 3	29	22						
"	31	Foundry office Expense	J. 3	2	21						
				$209	64					$209	64

75

PATTERNS—MANUFACTURING

July	31	Direct Labor—Patt.	J. 3	$1,837	59	July	31	Iron Castings, Mfg.	J. 3	$624	32
"	31	Indirect Labor "	J. 3	64	42	"	31	Finished Goods	J. 4	1,451	54
"	31	Fire Ins.	J. 3	2	44						
"	31	Liability Ins.	J. 3	16	84						
"	31	Superintendence	J. 3	20	—						
"	31	Deprec'n of Mach.	J. 3	86	46						
"	31	Building Expense	J. 3	22	22						
"	31	Foundry office Expense	J. 3	25	89						
				$2,075	86					$2,075	86

76

BRASS CASTINGS—MANUFACTURING

July	31	Stores	J. 4	$4,165	59	July	31	Finished Goods	J. 4	$4,824	05
"	31	Fire Ins.	J. 4		24			27,290 #			
"	31	Liability Ins.	J. 4	8	22			@ 17.7224¢			
"	31	Direct Labor—Brass C.	J. 4	410	63						
"	31	Indirect Labor—Brass C.	J. 4	155	94						
"	31	Superintendence	J. 4	20	—						
"	31	Deprec'n of Mach.	J. 4	51	50						
"	31	Building Expense	J. 4	4	20						
"	31	Foundry office Expense	J. 4	7	73						
				$4,824	05					$4,824	05

77

ALUMINUM CASTINGS—MANUFACTURING

July	31	Stores	J. 4	$363	76	July	31	Finished Goods	J. 4	$604	53
"	31	Fire Ins.	J. 4		12			1,752 #			
"	31	Liability Ins.	J. 4	8	22			@ 34.505¢			
"	31	Direct Labor—Alum. C.	J. 4	185	50						
"	31	Indirect Labor—Alum. C.	J. 4	36	90						
"	31	Superintendence	J. 4	10	—						
"	31	Deprec'n of Mach.	J. 4	2	—						
"	31	Foundry office Expense	J. 4	3	03						
				$604	53					$604	53

78

IRON CASTINGS—MANUFACTURING

July	31	Stores	J.3	$1.376	75	July	31	Finished Goods	J.4	$40,499	20
"	31	Fire Ins.	J.3	23	—			1,540,080#			
"	31	Liability Ins.	J.3	320	80			@2.62968 ¢			
"	31	Direct Labor, I.C.	J.3	19,655	14						
"	31	Indirect Labor, I.C.	J.3	2,468	14						
"	31	Superintendence	J.3	300	—						
"	31	Lighting Expense	J.3	86	78						
"	31	Deprec'n of Mach.	J.3	1,506	20						
"	31	Building Expense	J.3	182	24						
"	31	Foundry Office Expense	J.3	301	19						
"	31	Power Expense	J.3	142	76						
"	31	Air Expense	J.3	193	64						
"	31	Cupola	J.3	13,048	72						
"	31	Welding, Mfg.	J.3	179	53						
"	31	Pattern, Mfg.	J.3	624	32						
				$40,499	20					$40,499	20

79

MISCELLANEOUS PRODUCTS—MANUFACTURING

July	31	Stores	J.4	$41	51	July	31	Finished Goods	J.4	$68	80
"	31	Fire Ins.	J.4		46						
"	31	Liability Ins.	J.4		84			6,424#			
"	31	Direct Labor, Misc. P.	J.4	15	95			@1.071 ¢			
"	31	Deprec'n of Mach.	J.4	10	43						
"	31	Foundry Office Expense	J.4		22						
				$68	80					$68	80

80

TRADING

July	31	Finished Goods		J.4	$51,873	67	July	31	Sales Iron C.	J.4	$53,446	50
		Iron C.	$44,478.25				"	31	" Brass C.	J.4	5,638	92
		Brass C.	4,844.92				"	31	" Aluminum C.	J.4	691	05
		Aluminum C.	708.20				"	31	" Misc. Prod.	J.4	354	97
		Misc. Prod.	333.20				"	31	" Welding Service	J.4	47	58
		Welding Service	30.11				"	31	" Patterns	J.4	2,003	48
		Patterns	1,477.98									
July	31	Profit and Loss		J.5	10,308	93						
					$62,181	60					$62,181	60

81

MARKETING EXPENSE

July	31	Stores	J.5	$20	—	July	31	P. & L.	J.5	$373	23
"	31	Postage—Sales Office	J.5	15	—						
"	31	Salaries—Sales Office	J.5	325	—						
"	31	Misc. Sales Expense	J.5	4	50						
"	31	Deprec'n of Office Equip.	J.5	8	73						
				$373	23					$373	23

82

GENERAL EXPENSE

July	31	Stores	J.5	$20	—	July	31	P. & L.	J.5	$388	—
"	31	Postage—Gen'l Office	J.5	12	—						
"	31	Salaries— " "	J.5	300	—						
"	31	Misc. Gen'l Expense	J.5	50	—						
"	31	Deprec'n of Office Equip.	J.5	6	—						
				$388	—					$388	—

83

PROFIT AND LOSS

July	31	Marketing Expense	J.5	$373	23	July	31	Trading (Bal.)	J.5	$10,308	93
"	31	General Expense	J.5	388	—						
"	31	Bal. Net operating Income down		9,547	70						
				$10,308	93					$10,308	93
July	31	Bal. Net Income on all Capital carried down		$9,548	77	July	31	Bal. Net Operating Profit		$9,547	70
						"	31	Cash Disc't Offered on Sales	J.5	1	07
				$9,548	77					$9,548	77
July	31	Cash Disc't on Purchases (Lost)	J.5	$3	83						
"	31	Interest on Bonds	J.5	100	—	July	31	Bal. Net Income on all Capital		$9,548	77
"	31	Undivided Profits	J.5	9,444	94						
				$9,548	77					$9,548	77

PARKER–WEBB–ANDERSON FOUNDRY CO.
TRIAL BALANCE AND WORKING SHEET JULY 31, 191–

ACCOUNTS	TRIAL BALANCE		ADJUSTMENTS		ECONOMIC SUMMARY		BALANCE SHEET	
	DR.	CR.	DR.	CR.	LOSSES	GAINS	ASSETS	LIABIL'ES
Cash	44,126 78						44,126 78	
Petty cash	100 —						100 —	
Accounts receivable	6,553 58						6,553 58	
Notes receivable	4,061 36						4,061 36	
Notes receivable discounted		61 36						61 36
Inventory of finished goods	9,843 —				9,843 —			
Inventory of stores	36,410 55				36,410 55	20,164 09	20,164 09	
Moulding sand	2,224 84						2,224 84	
Fire insurance	220 —				220 —	164 80	164 80	
Liability insurance deposit	6,000 —						6,000 —	
Land	17,500 —						17,500 —	
Buildings	39,400 —						39,400 —	
Machinery	30,646 75						30,646 75	
Tools	12,000 —						12,000 —	
Foundry office equipment	500 —						500 —	
Sales office equipment	872 50						872 50	
General office equipment	600 —						600 —	
Good-will	7,000 —						7,000 —	
Postage–sales office	20 —				20 —	5 —	5 —	
Postage–general office	20 —				20 —	8 —	8 —	
Direct labor–iron castings	19,655 14				19,655 14			
Indirect labor–iron castings	2,468 14				2,468 14			
Direct labor–brass castings	410 63				410 63			
Indirect labor–brass castings	155 94				155 94			
Direct labor–aluminum castings	185 50				185 50			
Indirect labor–aluminum castings	36 90				36 90			
Direct labor–miscellaneous products	15 95				15 95			
Direct labor–cupola	2,724 45				2,724 45			
Direct labor–welding	163 16				163 16			
Direct labor–patterns	1,837 59				1,837 59			
Indirect labor–patterns	64 42				64 42			
Direct labor–power	150 —				150 —			
Superintendence	350 —				350 —			
Salaries–foundry office	120 —		200 —		320 —			
Salaries–sales office	150 —		175 —		325 —			
Salaries–general office	150 —		150 —		300 —			
Miscellaneous sales expenses	4 50				4 50			
Miscellaneous general expenses	50 —				50 —			
Cash discount offered on purchases	7 40				7 40	3 57	3 57	
Mortgage bonds payable		20,000 —						20,000 —
Accounts payable		1,203 90						1,203 90
Notes payable		3,000 —						3,000 —
Accrued payroll		5,507 30		525 —				6,032 30
Wages unclaimed		650 —						650 —
Accrued bond interest payable		500 —		100 —				600 —
Accrued taxes		300 —		70 —				370 —
Accrued liability insurance payable		5,600 —		390 46				5,990 46
Capital stock		147500 —						147500 —
Sales–iron castings		53,446 50				53,446 50		
Sales–brass castings		5,638 02				5,638 02		
Sales–aluminum castings		691 05				691 05		
Sales–miscellaneous products		354 97				354 97		
Sales–welding service		47 58				47 58		
Sales–patterns		2,003 48				2,003 48		
Reserve for bad debts		600 —						600 —
Bad debts	371 06						371 06	
Cash discount offered on sales		66 14				1 23		64 91
Discount on notes		16			16			
Liability insurance			390 46		390 46			
Interest on bonds			100 —		100 —			
Lighting expense			86 78		86 78			
Accrued lighting				86 78				86 78
Depreciation of machinery			2,003 06		2,003 06			
Reserve for depreciation of machinery				2,003 06				2,003 06
Depreciation of office equipment			19 73		19 73			
Reserve, depreciation, office equipment				19 73				19 73
Depreciation of buildings			123 46		123 46			
Reserve for depreciation of buildings				123 46				123 46
Taxes			70 —		70 —			
Inventory of finished goods July 31						5,448 57	5,448 57	
Net profit					9,444 94			9,444 94
Total	247170 30	247170 30	3,318 49	3,318 49	87,976 86	87,976 86	197750 90	197750 90

PARKER—WEBB—ANDERSON FOUNDRY CO. BALANCE SHEET

July 31, 1916

ASSETS—

Current Assets				
Cash in Bank			$44,126.78	
Petty Cash			100.00	
Accounts Receivable (Sched. 1)	$6,553.58			
Less unexpired Sales Discounts	64.91	$6,488.67		
Notes Receivable	4,061.36			
Less Notes Rec. Discounted, Unmatured	61.36	4,000.00		
Total Debts Receivable		10,488.67		
Less Res. for Bad Debts		223.94	10,259.73	$54,486.51
Working and Trading Assets				
Finished Goods (Inventory)			5,448.57	
Stores (Inventory)			20,164.00	25,612.66
Prepaid Expenses				
Fire Insurance (Unapportioned)			164.80	
Postage (Inventory)			13.00	
Liability Insurance Deposit		6,000.00		
Less Premiums Earned		5,990.46	9.54	
Fixed Assets				
Land			17,500.00	
Buildings		39,400.00		
Less Depreciation Reserve		123.46	39,276.54	
Machinery and Tools		42,646.75		
Less Depreciation Reserve		2,003.06	40,643.69	
Moulding Sand			2,324.84	
Office Equipment		1,972.50		
Less Depreciation Reserve		19.73	1,952.77	
Good-Will			7,000.00	108,597.84
Total Assets				$188,884.35

LIABILITIES AND CAPITAL

Current Liabilities				
Accounts Payable	1,203.90			
Less Unexpired Purchase Discount	3.57	1,200.33		
Notes Payable		3,000.00		
Accrued Payroll		6,032.30		
Wages Unclaimed		650.00		
Accrued Lighting Expense Payable		36.78		
Accrued Taxes		370.00		
Accrued Bond Interest		600.00		
Dividends Declared, Unpaid		2,950.00	14,839.41	
Funded Debt—Mtge. Bonds Payable			20,000.00	
Total Liabilities				34,839.41
Stockholders' Capital				
Capital Stock			147,500.00	
Undivided Profits			6,494.94	153,994.94
Total Liabilities and Capital				$188,884.35

Note:—In addition to the above-stated actual liabilities, the company is contingently liable on customers' notes discounted but not yet matured, to the extent of $61.36.

Accounts Receivable—Schedule 1.

St. Cloud Mfg. Co.	$2,814.21
Emerson Brantingham Co.	3,929.78
Morison Hardware Co.	47.19
Warner Hardware Co.	62.40
	$6,555.58

SCHEDULE OF EXPENSE—DISTRIBUTION

	TOTAL	BUILDING EXPENSE	GENERAL FOUNDRY EXPENSE	POWER EXPENSE	AIR EXPENSE	CUPOLA	WELDING	PATTERNS	IRON CASTINGS	BRASS CASTINGS	ALUMINUM CASTINGS	MISCEL. PROD.	FINISHED GOODS	MARKETING EXPENSE	GENERAL EXPENSE	DEDUCTIONS FROM INCOME
Stores	16,246 46		54 40	165 —		10,026 76	12 69		1,376 75	4,165 59	363 76	41 51		20 —	20 —	
Fire insurance	55 20	19 80			80	8 34		2 44	23 —	24	12	46				
Postage—sales office	15 —													15 —		
Postage—general office	12 —														12 —	
Liability insurance	390 46					38 78	2 36	16 84	320 80	8 22	3 22	24				
Direct labor—iron castings	19,655 14								19655 14							
Indirect labor—iron castings	2,468 14								2,468 14							
Direct labor—brass castings	410 63									410 63						
Indirect labor—brass castings	155 94									155 94						
Direct labor—aluminum castings	185 50										185 50					
Indirect labor—aluminum castings	36 90										36 90					
Direct labor—miscellaneous products	15 95											15 95				
Direct labor—cupola	2,724 45					2,724 45										
Direct labor—welding	163 16						163 16									
Direct labor—pattern	1,837 59							1,837 59								
Indirect labor—pattern	64 42							64 42								
Direct labor—power	150 —			150 —												
Superintendence	350 —							20 —	300 —	20 —	10 —					
Salaries—foundry office	320 —		320 —													
Salaries—sales office	325 —													325 —		
Salaries—general office	300 —														300 —	
Miscellaneous sales expenses	4 50													4 50		
Miscellaneous general expenses	50 —														50 —	
Cash discount offered on purchases	3 83															3 83
Interest on bonds	100 —															100 —
Lighting expense	86 78								86 78							
Depreciation of machinery	2,003 06			122 20	17 14	87 92	29 22	86 46	1,596 20	51 50	2 —	10 42				
Depreciation of office equipment	19 73		5 —											8 73	6 —	
Depreciation of buildings	123 46	123 46														
Taxes	70 —	70 —														
		213 26				4 60		22 22	132 24	4 20						
			379 40	2 04		37 09	2 21	25 89	301 19	7 73	3 03	22				
				439 24	175 70	120 78			142 76							
					193 64				193 64							
						13,048 72			13,048 72							
							209 64		179 52				30 12			
								2,075 86	624 32				1,451 54			
									40,499 20				40,499 20			
										4,824 05			4,824 05			
											604 53		604 53			
												68 80	68 80			
Total	48,343 30												47,478 24	373 23	388	103 83

PARKER—WEBB—ANDERSON FOUNDRY CO. PROFIT & LOSS STATEMENT FOR THE MONTH OF JULY 191

	IRON CASTINGS	BRASS CASTINGS	ALUMINUM CASTINGS	MISCELLANEOUS PRODUCTS	WELDING SERVICE	PATTERNS	TOTAL
Sales	$53,446 50	$5,638 02	$691 05	$354 97	$47 58	$2,003 48	$62,181 60
Manufacturing Expenses							
Stores	1,376 75	4,165 59	363 76	41 51			5,947 61
Direct labor	19,655 14	410 63	185 50	15 95			20,267 22
Indirect labor	2,468 14	155 94	36 90				2,660 98
Superintendence	300 —	20 —	10 —				330 —
Lighting service	86 78						86 78
Depreciation of machinery	1,596 20	51 50	2 —	10 42			1,660 12
Fire insurance	23 —	24	12	46			23 82
Liability insurance	320 80	8 22	3 22	24			332 48
Building expense (schedule I)	182 24	4 20					186 44
General foundry expense (schedule II)	301 19	7 73	3 03	22			312 17
Power expense (schedule III)	142 76						142 76
Air expense (schedule IV)	193 64						193 64
Cupola (schedule V)	13,048 72						13,048 72
Welding (schedule VI)	179 52				30 12		209 64
Patterns (schedule VII)	624 32					1,451 54	2,075 86
Total	40,499 20	4,824 05	604 53	68 80	30 12	1,451 54	47,478 24
Inventory at beginning of period	8,700 48	50 58	119 34	849 94		122 66	9,843 —
Total	49,199 68	4,874 63	723 87	918 74	30 12	1,574 20	57,321 24
Less inventory at end of period	4,721 28	29 71	156 72	444 64		96 22	5,448 57
Cost of goods sold during period	44,478 40	4,844 92	567 15	474 10	30 12	1,477 98	$51,872 67
Gross Profit on Sales	8,968 10	793 10	123 90	Loss 119 13	17 46	525 50	$10,308 93
Selling Expenses							
Stores							20 —
Postage							15 —
Salaries							325 —
Depreciation on office equipment							8 73
Miscellaneous							4 50
Total							373 23
Net Profit on Sales							9,935 70
General Expenses							
Stores							20 —
Postage							12 —
Salaries							300 —
Depreciation on office equipment							6 —
Miscellaneous							50 —
Total							388 —
Income from Sales							9,547 70
Cash discount not taken on sales							1 07
Gross Income							9,548 77
Less—Cash discount lost on purchases							3 83
Interest on bonds							100 —
Total							103 83
Net income for period							$9,444 94

INDEX

Accommodation Notes,
Potential liability of, 189
Accounts Payable,
Controlling account, 196; Ledger form, 370, 371
Accounts Receivable,
Discounts, 191; Assets as rights, 222; Schedules of, 363, 364
Accrual System,
Basis of trial balance, 160; Special features, 161–62; Nature of accounts, 198–99
Adjustments,
Economic accounting, 171–84
Advertising,
Asset or expense, 180; True prepaid, 180–81
Allocated Cost,
Depreciation provisions, 298; Principle illustrated, 299–301; Applying proportional depreciation method, 320–21; Arithmetic progression applied to depreciation, 322–23
Annuities,
Definition, 285; Annuity certain, valuation of, 285, 290; Computing amount, 285–87, 288; Rent, 287–88; Present worth, rule and formula for, 288–90; Valuation of annuities certain, 290–91; Results of method on depreciation, 315–18
Application of Accounting Principles, Illustration of,
Organization of company, 326–30; Trial balance, 327; Business incorporated, 329; Subscription book, 330, 358; Sales agreement, 330, 358; Opening entries, 331, 358, 364; Books and ledgers, 331; General ledger accounts, 331–32; Purchase register, 333, 334, 336; Invoice register, 333, 335; Sales analysis, 336–39; Payroll, 339, 340; Petty cash, 339, 341, 342, 358; Main cash book, 341, 343–44; Cash transactions, 344, 345; Remittance on account, 344, 346, 364; Cash receipts, 345; Cash payments, 345, 346, 347; Journal
Application Principles—continued
entries, 347–48, 359; Notes receivable discounted, 348, 359; Posting detail ledgers, 348–49; General ledger, 349–50; Trial balance, 350, 387; Adjustments preparatory to closing, 350–51, 387; Stores records, 352–53; Expense distribution, 354–56, 389; Cost and income, 356, 389, 390; Economic summary, 356, 390; Closing entries, 356, 359–65; Trial balance, 357, 387, 388
Appraisal,
Method of estimating depreciation, 325
Arrangement of Accounts,
Considerations governing, 211–12
Assets,
Classes of, in personal accounts, 186–96; Value of durable, 194; Balance sheet a statement of rights, 222; Current, 224; Fixed and intangible, 224; Deferred assets, 224–25; Deducting depreciation, 226–28, 229; Depreciation of intangible, 305
Assets and Liabilities,
Comparative statement, 54–56; Definitions, 65; Classifications of, 99–100; Balance sheet, 388

Balance Sheet,
Basis of financial statement, 167–68; Year's statement, 169; Working sheet illustrated, 169–70; Adjustment of economic accounts, 171 *et seq.;* Definition and origin, 222; Information classified, 223; Liabilities, assets for, 223–24; Classification of assets, 224–25; Liabilities classified, 225; Consideration of forms, 225–26; Deducting depreciation, illustration, 226–28; Corporation report, 228, 229; Constructing a statement, 228, 230; Limitations, 230; Preparation analyzed, 231–33; Supplementary entries, 234; Proving, 234; Statement, 388

Balance Sheet Method,
Measuring profits by, 32–34
Bookkeeping,
Relation to accounting, 8; Inspection to check, 10; Interpretive ability, 12
See also Fundamentals of Bookkeeping
Books of Account,
Direct entries to ledger objectionable, 75–76; Journal entries, 76–77; Preparatory entry books, 77, 78; Posting, 78–80; Recording, 81; Subsequent entries, 81–82; Draft and note books, 83; Subsidiaries, 84–95; Cash book, entries illustrated, 85–87, 92; Cash debits, 85–88; Cash credits, 86, 88–90; Sales journal, 90–93; Merchandise credits, 93; Recording purchases, 93–95
Business Profits and Capital,
Money, medium of exchange, 14; Estimating profits and cash costs, 15–19; Cost distribution, illustrations of, 19–22; Business profit defined, 22; Economic units of production, 22–24; Marginal products, 24–26; Interest and savings, 26–29; Interest contributes to profit, 29–30; Elements of profit, 31; Measuring profits, illustrations, 32–35

Capital,
See Business Profits and Capital
Cash Book,
Recording debits and credits, 85–90; Cash sales, 92–93; Balance of cash, 95; Specialized, 122–24; Posting debit page, 124; Form for cash credit, 125–26; Petty cash account, 132; Cash discounts, 140–47; Ledger form, 364
Checking,
Reviewing entries, 263–64; Reverse posting, 264–68; Current checking, 268–71; Trial balance method, 269–71; Internal check on dishonesty, 274–79
Classification of Accounts,
Correctness essential, 96–87; Income and expense classified, 97; Value of detailed classification illustrated, 98–99; Rule for assets and liabilities, 99–100; Accounts based on accurate facts, 100–01; Designating transactions, 101–02; Personal and impersonal, 103; Economic, 103; Specific, 103; Profit-and-loss accounts, 103–04; Proprietorship, 104–05; Corporation ownership, 105–06; Controlling accounts, operation of, 106–113; Private ledger controlling account, 110–12; Transferring customer's accounts illustrated, 112–13
Columnar Posting,
Transactions classified, 116; Purchase book illustrated, 116–19; Sales book accounts, 119–20; Recording notes and drafts, 128–29
Compound Interest Processes,
Terms defined, 280–81; Ratio of increase, 281; Finding amount of principal, 282–83; Present worth, 283–85; Annuities, 285–91; Amount of an annuity, 285–87, 288; Rent of annuity, 287–88; Present worth of annuity, 288–90; Valuation of annuities certain, 290–91; Net income determined, 292; Accounting for profits, 292–93; Basis of distribution 293–94; Instalment valuations, 295
Constructive Accounting,
Professional efficiency, of, 9; Systematizing by public accountant, 11, 12
Controlling Accounts,
Trial balance for, 106–07; Operation of, 107–08; Applications of unlimited, 109–10; Private ledger, control of, 110–12; Reopening individual accounts, 112–13; Advantages of, 113
Corporations,
Classifying accounts, 105; Balance sheet illustrated, 228, 229; Opening entries, 237–38; Application of principles, 326–90
Credit,
Debiting discounts, 139–47; Valuation of future income, 139–40; Discount an asset, 140–42; Risks, 143–45; Recording, 146–47; Discount quotations, advantages of, 148–50

Debits and Credits,
Position of, 42–44; Rules illustrated, 48–50; Trial balance tests, 65; Universal rules, 68–71; Results, 72; Posting totals in journal, 84; Cash book entry, 85–90; Cash debits illustrated, 86–88; Cash credits illustrated, 86, 88–90;

Debits and Credits—continued
Posting media, 115–27; Trial balance tests, 153–54; Footings, 155; Balances, 156; Proving subsidiary books, 165
Departmental Statement,
Analysis of form, showing profits, 215–16
Depreciation,
Problem analyzed, 297–98; Misconceptions of, 298; Allocated cost principles, 298–301; Value shrinkage, 301–308; Interest theory untenable, 304–05; Causes, 305–06; Accounting methods for, 306–07; Specific reserve accounts, 307; Scrapping, 307–08; Relation to repairs, 308; Parts replaced, 308; Repairs, 309; Substituting accounts, 309–10; Absolescence, 310–11; Ledger forms, 367, 368, 382
Depreciation, Methods of Determining Amount of,
Sinking-fund method, 312–14; Value shrinkage principle, 314–315; Annuity method, results of, 315–18; Level-depreciation method, 318–19; Proportional method, 320–21; Diminishing arithmetic progression, 322–23; Level-depreciation method recommended, 324; Appraisal, 325
Diminishing Arithmetic Progression,
Illustration, 322; Allocated-cost principle applied, 322–23; Value shrinkage depreciation, 323
Discounts,
Cash book form for, 122–24; Posting debit page, 124; Cash credit page, 125–26; Posting credit page, 127; On purchase costs, 140–42; Credit risks, 143–45; Recording methods, 146–47; Trade discounts, 148–49, 150; Quantity discounts under contract, 172; Ledger forms, 379, 380
Divisible Costs,
Allocation of, 213–14
Double Entry,
See **Fundamentals of Bookkeeping—Double Entry**
Durable Assets,
Value of, 194

Economic Accounts, Relation to Financial Statement,
Balance sheet and income statement, 167–68; Monthly and yearly statement, 168–69; Working sheet, analysis of, 169 *et seq.*; Adjustments, 171; Raw material, 172, 173; Goods in process, 173, 174; Finished goods, 174; Freight inward, 174–75; Direct wages, 175; Manufacturing costs, 175–76; Depreciation, 176; Interest on mortgage, 176; Taxes, 176–78; Insurance, prepaid, 178–79; Advertising, prepaid, 180–81; Merchandise sales, 181; Sales expenses, 182; Freight outward, 182–83; Commissions, 183; Office expenses, 183–84; Stationery, 184; Petty expenses, 184
Economic Cooperation,
Unit factor, 22–26; "Marginal product," 24; Determining profits, 25–26
Economic Summary, 202–21
Financial statements, 202; Ascertaining profit and loss, 203–04; Evolution of methods, 204–05; Nature of terms, 205–07; Profit-and-loss account form, 207–08, 212; Mercantile operations, statement for, 209–10; Arrangement of accounts, 211, 213; Listing expenses, 213–14; Departmental statement illustrated, 214–16; Separating details, 216–17; Preparation of, 217–20; Proprietor's account, 220; Profit-and-loss statement, 390
English Systems,
"Tallies," 3–4, 37–38; Public accounting, 12
Entries, Opening and Closing,
Opening entry illustrated, 235–38; Accuracy essential, 238–39; Accounting periods, 239–40; Closing methods, 240–41; Working sheet, 241–42; Economic accounts to profit and loss, 242–45; Entries reversed, 244
Errors, Prevention and Detection of,
Internal check, 274; Accounting control, 274–76; Joint responsibility, 275–76; Checking stock, 277; Imprest cash fund, 277–79
Evolution of Accounting,
Primitive methods, and definition, 1; Ancient customs, 2; System in medieval England, 2–3; "Tally" records, 3–4; Discloses financial conditions, 4–5; Determining profits, 5; Ascertaining efficiency, 6; Fixing responsibility, 6–7; Government appropriation, 7; Book-

Evolution of Accounting—continued
keeping defined, 8; Forms of accounting, 9; Constructive accounting, 9; Inspective, 10; Interpretive, 10–11, 12; Public accounting, 11–12; Definition, and divisions of, 13
Expenses,
Relation to income, 66–67; Economic summary of accounts, 167–84; Manufacturing, 175–76; Selling, 182; Schedules, 380–86, 389

Financial Statements, Trial Balance Book,
See also Economic Accounts
See also Personal and Property Accounts
Freight,
Economic accounting for, 174–75, 182–83
Fundamentals of Bookkeeping—Double Entry,
Merchandise accounts peculiar, 60–61, 72–73; Economic and specific accounts, 62; Fundamental principles of double entry, 63–64; Exchanges, 64–65; Asset and liability defined, 65; Income and expense measure profits, 66–67; Debit and credit rules, 67–72; Advantages, 73–74
Fundamentals of Bookkeeping—Single Entry,
Classification, 37; Ledger accounts, development of, 38–45; Three-column balance, 40–41; Purchases on account, 42; Debits and credits, 42–44; Personal accounts, 44–50; Personalistic theory illustrated, 48–50; Debiting and crediting, 48–50; Single-entry operations, 51–52; Financial condition determined, 51–52; Double entry supersedes single, 52–58; Assets and liabilities verified, 55–57; Individual accounts reconstructed, 57–58

Income,
Definition of, 66; Building a system of income and expense accounts, 97; Profit-and-loss accounts, 103–04; Valuations for recording, 137–40; Discount on purchases, 140–43; Sources of, 192–94; Annuity valuations, 285–92; Accounting for profits, 392–93; Basis of distribution, 293–94; Promised by contract, 295
See also Business Profits and Capital
Income Sheet Method,
Computing profits, 32, 34, 35
Income Statement,
Basis of financial statement, 167, 168; Monthly statements, 169; Working sheet accounts analyzed, 169–84
See also Economic Summary
Inspective Acounting,
Extended auditing, 10; Public accountants, 11; In England, 12
Instalments,
Double account payments, 192
Interest,
Future incomes discounted, 27–28; Contributes to profit, 29–30; Mortgages, 176; Fallacy of interest theory, 304–05
See also Compound Interest Processes
Interpretive Accounting,
Information data, 10; Public auditor's work, 11, 12; In England, 12
Investment and Profit,
Purposes, 14; Cash outlay and income, examples of, 15–19; Unit costs, 19–22; Cooperative units, 22–26; Interest and income, 27–30; Elements of profit, 31; Computing methods, 32–36

Journal,
Private ledger control, 112; closing out, 163–64; Form sheets, 358–62

Labor Saving Devices,
Guides for, 246; Record keeping, 247; Special methods, 248; Loose-leaf books, 248–50, 251; Card records, 250; Original records, 252; Tickets, 252–53; Carbon records, 254; Sales book billing, 254–55, 256; Voucher register, 255, 257; Loose-leaf journals, 258–59; Side posting, 259; Ledgers, 259–60; Boston ledger, forms of, 260, 261; Billing and adding machines, 261–62; Standardization, 262–63; Checking, 263–64; Reverse posting, 264–68; Self-proving trial balance, 268–71; Locating errors, 271; Ledger tabulation, 271–73
Land,
Estimating values, 195–96; Expense schedule, 367

Ledger Accounts,
Early records, 38–40; Three-column balance, 40–41; Transferring entries, 41, 43; Cashier's account, 45–47; Personalistic theory, 47–48, 50; Preparing balance sheet, 55–57; Reconstructing, 57–58; Entries not made direct to, 75–77; Court evidence, 82; Classification important, 96–113; Customer's controlling account, 106–10, 112–13; Subsidiary ledgers, 133, 165; Testing postings, 152–54; Labor saving systems, 259–60; Boston ledger, 260, 261
Level-Depreciation Method,
Significance of, 318–19; and value shrinkage, 319; Best for practical purposes, 324
Liabilities,
Balance sheet preparation, 223; Classification, 225; Forms illustrated, 226–28, 229, 233

Manufactures,
Raw material, 172–74; charging expenses, 175–84; Trading or working assets, 192–93; Durable assets, 194; Depreciation, 194–95; Reserves, 198–99; Income statement, purpose of, 202–07; Mercantile operations, 209–13; Departmental statement, 214–17; Economic summary, preparation of, 217–20; Opening entries, 236–38; Closings, 240–43; Schedules, 384–85
Marginal Product,
Cooperative industry, 24–26
Memo Book,
Draft and note book forms, 83; Posting media, 258
Merchandise Accounts,
Peculiarities, 60–61; Subdivisions of, 72–73; Returns credited, 93; Controlling accounts tested, 106–07; Cash book illustrated, 122–24; Valuations, 136–47; Discounts, 140–50
Mortgage Bonds,
Real estate liabilities, 197

Notes Payable,
Tangible liabilities, 197; Schedule of, 370
Notes Receivable,
Promissory notes, 186–87; Notes of officers, employes and stockholders, 187–88; Discounting, 188;
Notes Receivable—continued
Assets as rights, 222; Schedules of, 365

Payroll Book,
Preparatory entries, 131; Office salaries, 183; Ledger forms, 370, 371
Personal Accounts,
Application to other items, 47; Personalistic theory, 48, 50; Single entry limitations, 52; Reconstructing 54–58; Proprietorships, 104–05; Adjustment of, 199; Distribution of income, 220
Personal and Property Accounts, Relation to Financial Statement,
Assets, classes of, 186; Promissory notes, 186–87; Notes receivable, discounting of, 187–89; Accommodation notes as liabilities, 189; Accounts receivable, 190; Uncollectable accounts, 190–91; Discounts on uncollected income, 191; Instalments, 192; Future income sources, 192–94; Trading or working assets, 192–93; Prepaid expenses, 194; Fixed assets, 194; Depreciation, 194–95; Land, 195–96; Accounts payable, 196–97; Notes payable, 197; Mortgage bond, 197; Reserves, 197–98; Accruals, 198–99; Proprietor's account, 199; Verification, 200
Posting,
Significance of checks, 78–79; Procedure for debits and credits, 80, 86–90, 152; Subsidiary books, 164; Tickets save labor, 253; Side posting, 259; Reverse-posting sheets, 264–68
Posting Media,
Definition, 115; Columns for separate classifications, 116–18; Form for purchase book, 117; Debit and credit postings, 118–19; Columnar sales book, 119–20; Sales book footings posted, 121; Cash-debit form, 121–24; Cash-credit illustration, 124–26; Credit page posted, 127; Notes and drafts recorded, 128–29; Notebook entries, 129–30; Payroll book, 131; Petty disbursements, 132; Detailed ledger, 133
Preparatory Entry Book,
Day-book superseded by, 77
Profit-and-Loss Accounts,
Income and expense for year, 103–04, 204, 205; Variable terms, 206–07; Form illustrated, 207–08, 212;

Profit-and-loss Accounts—continued
Charging taxes, 211; Form, 386; Statement, 390
Profits,
See Business Profits and Capital
Proportional Depreciation Method,
Uneven allowance, 320; Applying allocated-cost principle, 320–21; Value-shrinkage principle applied, 321–22
Proving,
Summary of methods, 200; Closings, 240–41; Checking, 263–64; Reverse posting, 264–68; Trial balance self-proving, 268–71; Tabulation of ledger, 271–73
See also Internal Check
Public Accounting,
Definition of, 11; Methods reversed in England, 12
Purchase Book,
Entry methods, 93–94, 95; Specialized form, 116–18; Closing out, 163; Voucher registry, 257

Rate of Interest,
See Compound Interest Processes
Receipts and Expenditures,
System of accounting, 159, 161; Economic summary, 167–84
Recording,
Routine of, 81; Notes and drafts, 128–29; Notebooks, 129–30; Discounts, 146–47
See also Valuations for Rcording Purposes
Repairs,
Relation to depreciation, 308; Costs in large and small plants, 309; Class and specific reserves, 309–10
Reserves,
Crediting of, 197–98

Sales Book,
Recording merchandise sales, 90–92; Illustration, 91; Special columns in, 119–20; Posting from, 121; Cash discounts, illustration, 122–24; Billing from 254–55, 256; Schedules of sales, 377–79
Scrapping,
Depreciation reserve, 307–08; Obsolescence, 310–11
Single Entry,
See Fundamentals of Bookkeeping—Single Entry
Sinking-Fund Method,
Applied to depreciation, 312–13; Significance, 313; Value shrinkage, 314–15; Relation to annuity method in depreciation, 316

Taxes,
Economic accounting, 176–78
Trading Assets,
Income sources, 192
Trial Balance,
Testing for errors, 151–54; Old and new methods, 152–54; Use of, 154; Forms, 155–56; Preparing financial statements, 157, 159, 166; Record book, 158; Determining order of accounts, 158; Incompleteness, 159; Practical systems, 159–62; Sales entries, 162–63; Closing subsidiary journals, 163–64; Summary of operations, 164–65; Proving the ledgers, 165; Foundation for statements, 166; Working sheet and accounts, 169 *et seq.*; Adjustment, economic summary and balance sheet forms, 387

Uncollectable Accounts,
Estimating losses, 190–91

Valuations for Recording Purposes,
Cost-value basis, 135; Division of rights, 136; Future income, 137–38; Sales, and promised income, 138–39; Illustration future income sources, 139–40; Discount on purchases, illustrated, 140–43; Risk element, 143–44; Discounts and prices, 144–45; Methods inadequate, 146–47; Discount losses, bases of, 147; Trade discounts, advantages of, 148–49; Equipment, 149–50; Liabilities, 150
Value Shrinkage Theory,
Confused with depreciation, 301; Decreased selling value, 301–02; Present worth decreased, 302–03; Applied to sinking-fund method, 314–15, 316; Arithmetic progression, 323
Voucher Register System,
Creditors' accounts, 255, 257

Work Assets,
Classes of, 192–93
Working Sheet,
Analyzing accounts, 169–84; Illustration, 387; Trial-balance, form of, 387

NOV 26 1917